ROCKY FLATS PLANT

DESIGN MANAGEMENT PLAN

for

ENVIRONMENTAL RESTORATION MANAGEMENT PROGRAM

Approved: _____

Project Manager / **Printed Name** / **Date**

DOCUMENT CLASSIFICATION REVIEW WAIVER PER CLASSIFICATION OFFICE

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SECTION 1
INTRODUCTION

1.0 INTRODUCTION

1.1 Purpose

This document defines how the Design Management Requirements (DMRs) established in Section 6 of the Rocky Flats Management Procedures and Requirements (MPRs) will be implemented for the Rocky Flats Plant (RFP) Environmental Restoration (ER) Major System Acquisition (MSA) Project. The purpose of this Design Management Plan (DMP) is to identify and implement the procedures that shall be utilized by the EG&G ER Organization and support organizations including EG&G's Management and Operations (M&O) organization and Architect/Engineer (A/E) subcontractors with assigned responsibility for ER MSA design projects.

1.2 Scope

The intent of this plan will be to document the design management requirements which apply to the planning, process, execution, documentation, control, and verification for support of the design activities of the ER projects. In addition, various engineering principles designated in the ER Project Management Plan and/or DOE Order 4700.1 shall be implemented, including value engineering, human factors engineering, and systems engineering. The DMP shall discuss the various phases of project planning and control with respect to conceptual/Title I design and Title II and Title III design.

In addition, the use of a graded approach to the ER projects shall be discussed in order to provide flexibility to accommodate all types of ER projects and schedules. The graded approach should be controlled by issues such as project size, cost, complexity, schedule, regulatory drivers, and safety and environmental risk. For instance, projects which are relatively simple and low cost shall receive adequate support, but through the graded approach, unnecessary reviews and support would be eliminated. The requirements of this DMP for the ER MSA projects shall be reviewed against existing EG&G Plant Procedures including the Integrated Work Control Program (IWCP), Conduct of Engineering Manual (COEM), and Configuration Change Control Program (CCCP). Efforts to integrate, modify, or exempt the requirements of the IWCP, COEM, and CCCP, where applicable, shall be executed in order to avoid duplication of efforts with the MPR for the ER MSA Project.

1.3 Reference Documents

The DOE orders and documents that establish the DMP Requirements include:

- Baseline Guidance for the Office of Environmental Restoration, U.S. Department of Energy Department of Environmental Restoration, EM-40, Sept. 1991 (draft)
- The Rocky Flats Plant Federal Facility Agreement and Consent Order (Interagency Agreement, IAG), Jan. 22, 1991
- DOE Order 4010.1A, Value Engineering
- DOE Order 4240.1K, Designation of Major System Acquisitions and Major Projects
- DOE Order 4700.1, Project Management System, March 6, 1987 (as amended by Change 1, June 2, 1992)
- DOE Order 5440.1E, National Environmental Policy Act Compliance Program
- DOE Order 5480.4, Environmental Protection, Safety, and Health Protection Standards
- DOE Order 5480.23, Nuclear Safety Analysis Reports

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- DOE Order 6430.1A, General Design Criteria

- Rocky Flats Office DOE ER Management Procedures and Requirements Section 6 entitled Design Management Requirements.

The hierarchy of the documents which establish requirements for the DMP is illustrated in Figure 1-1, Requirements Documents Hierarchy.

1.4 Procedural Interfaces

The DMP is one of 13 Implementation Plans and Procedures (IPPs) applicable to the RFP ER MSA. The individual IPPs are detailed guidance documents utilized to define specific project management requirements. The DMP has direct interface with the following IPPs: Construction Management; Quality Assurance; Test and Evaluation; Configuration Management; Advanced Acquisition Plan; Operations Plan; Project Control System; Environmental, Safety, and Health (ES&H): and Administrative Controls. This interface is identified in Table 1-2, IPP Level II Interface.

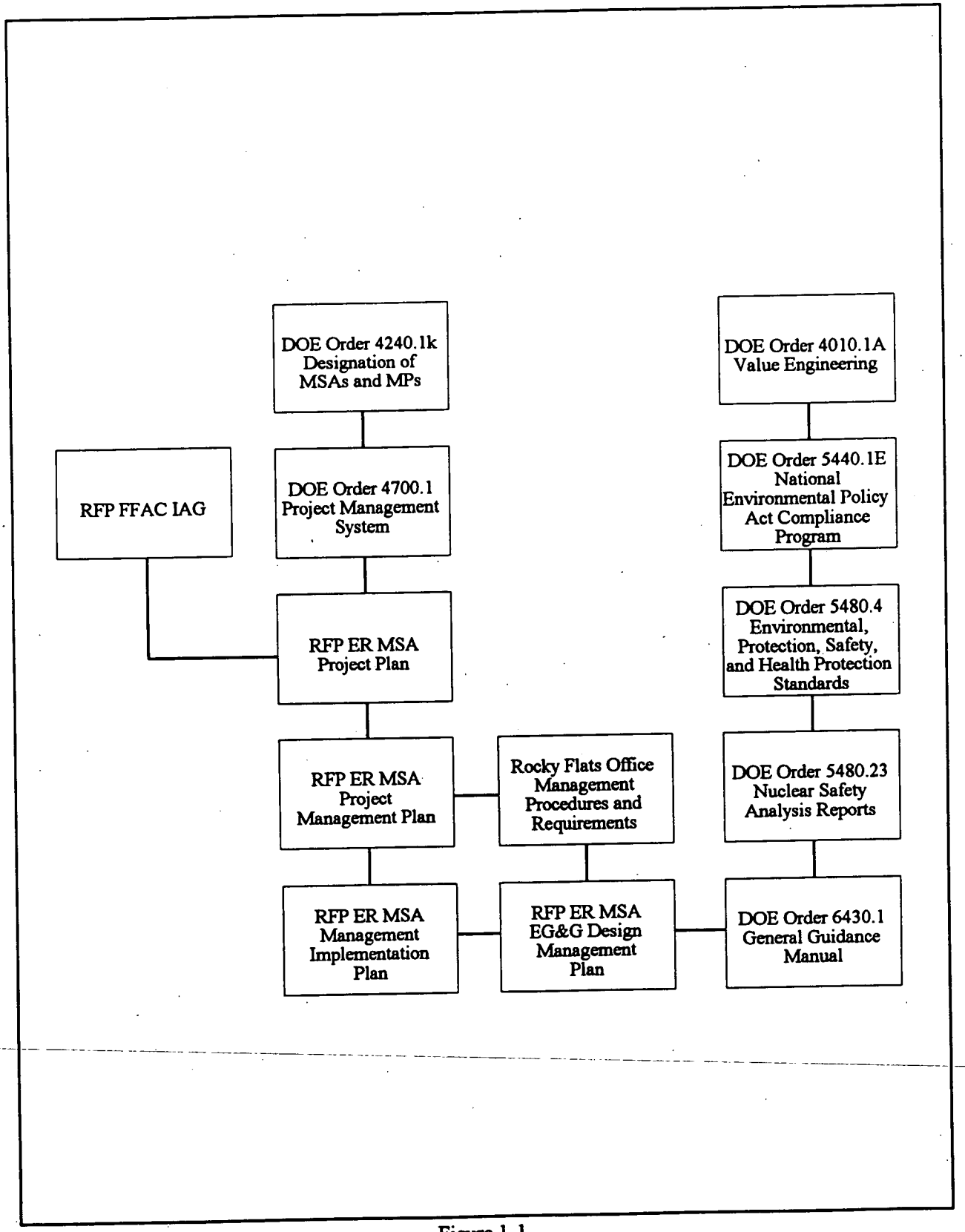

Figure 1-1.
Requirements Documents Hierarchy

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Table 1-1.
DOE RFP ER MSA Project
Implementation Plans and Procedures
Level II Interface Matrix

Design Management Plan		Project Controls System Description	Configuration Management Plan	Quality Assurance Plan	Administrative Control Plan	Environment, Health, and Safety Plan	Public Outreach Plan	Design Management Plan	Test and Evaluation Plan	Acquisition Strategy Plan	Data Management Plan	Construction Management Plan	Operational Requirements Plan	Self Assessment Plan
1.0	INTRODUCTION													
1.1	Purpose													
1.2	Scope													
1.3	Reference Documents													
1.4	Procedural Interfaces	X	X	X	X	X			X	X		X	X	
2.0	PROJECT ORGANIZATION, CONTROL, AND PLANNING													
2.1	Organization and Responsibilities													
2.1.1	Department of Energy													
2.1.2	EG&G ERM Organization													
2.1.3	Supporting Organizations											X	X	
2.1.4	Interface Control													
2.2	Project Definition and Types of ER Projects	X										X	X	
2.3	Graded Approach			X										
2.4	Project Initiation and Planning													

Table 1-1.
(continued)
DOE RFP ER MSA Project
Implementation Plans and Procedures
Level II Interface Matrix

Design Management Plan		Project Controls System Description	Configuration Management Plan	Quality Assurance Plan	Administrative Control Plan	Environment, Health, and Safety Plan	Public Outreach Plan	Design Management Plan	Test and Evaluation Plan	Acquisition Strategy Plan	Data Management Plan	Construction Management Plan	Operational Requirements Plan	Self Assessment Plan
2.5	Justification of Project Needs and Requirements													
2.6	Authorization	X												
2.7	Acquisition or Assistance Planning									X				
2.8	Work Authorization													
2.9	ER Subproject Work Package													
2.10	Environmental Planning													
2.11	Waste Management Planning													
2.12	Safety and Health Protection and Planning					X								
2.13	Project Risk Assessment, Management, and Reporting													
2.14	Functional Design Criteria													
2.15	Establishment of Functional Design Criteria Documents													
2.16	System Engineering Management Plan													
2.17	Subcontracting Arrangements for A/E Project Orders													

Table 1-1.
(continued)
DOE RFP ER MSA Project
Implementation Plans and Procedures
Level II Interface Matrix

Design Management Plan		Project Controls System Description	Configuration Management Plan	Quality Assurance Plan	Administrative Control Plan	Environment, Health, and Safety Plan	Public Outreach Plan	Design Management Plan	Test and Evaluation Plan	Acquisition Strategy Plan	Data Management Plan	Construction Management Plan	Operational Requirements Plan	Self Assessment Plan
3.0	CONCEPTUAL/ TITLE I DESIGN													
3.1	Design Verification and Control											X	X	
3.1.1	Design Summaries and Reviews													
3.1.2	Calculations													
3.1.3	Qualifications Testing								X					
3.1.4	Change Control		X											
3.1.5	Engineering Surveillance				X									
3.1.6	Design Documentation Control				X									
3.1.7	Design Variance Request													
3.2	Evaluation of Technical Alternatives and Value Engineering													
3.3	Preparation of Environmental Plans and Permits													
3.4	Environmental Safety and Health Work Survey and Program Analyses					X								
3.5	Human Factors Engineering													
3.6	Project Cost Estimating													
3.7	Davis-Bacon Determinations													

Table 1-1.
(continued)
DOE RFP ER MSA Project
Implementation Plans and Procedures
Level II Interface Matrix

Design Management Plan		Project Controls System Description	Configuration Management Plan	Quality Assurance Plan	Administrative Control Plan	Environment, Health, and Safety Plan	Public Outreach Plan	Design Management Plan	Test and Evaluation Plan	Acquisition Strategy Plan	Data Management Plan	Construction Management Plan	Operational Requirements Plan	Self Assessment Plan
3.8	Preparation of Conceptual/Title I Design													
3.9	Design Summaries and Reviews													
3.10	CDR Reviews													
4.0	TITLE II AND TITLE III DESIGN													
4.1	Preparation of Final Working Drawings and Specifications													
4.2	Engineering Hold System													
4.3	Preparation of Bidding/Procurement Documents													
4.4	Estimation of Quantities and Detailed Estimates													
4.5	ES&H and Waste Management Requirements for Title III Support and Coordination of Environmental Permits													
4.6	Development of Title II Design													
4.7	Development of Requirements for Title III Services and Construction and Field Activities								X		X			
4.8	Title II Design Reviews													

SECTION 2
PROJECT ORGANIZATION, CONTROL, AND PLANNING

2.0 PROJECT ORGANIZATION, CONTROL AND PLANNING

2.1 Organization and Responsibilities

The DMP requires participation from various organizations in order to develop and manage an ER design project. The roles and responsibilities of the participants in the DMP including DOE, EG&G, and their subcontractors, are defined in this section.

An illustration of the supporting organizations and responsibilities with respect to various Design Management activities is shown in Table 2-1.

2.1.1 Department of Energy

As directed by the Rocky Flats ER Project Management Plan (PMP), the U.S. Department of Energy (DOE) Rocky Flats Office (RFO) Environmental Restoration Division (ERD) is designated as the Project Management Office (PMO) for the ER MSA. The ERD is responsible for the overall management of the ER MSA Project which includes budgeting, funding, scheduling, and cost control. Responsibility and authority for the functional management of the ER design projects are assigned to DOE ER Subproject Managers within the ERD. The DOE ER Subproject Managers are assisted in their duties by various related DOE RF support groups. The management direction and oversite given by the ERD to the EG&G ERM Organization provides assurance that the individual ER subprojects are being appropriately executed to meet the scope of the overall ER MSA Project.

2.1.2 EG&G ERM Organization

The DMP assumes EG&G will act as the ER MSA project manager and the M&O contractor. The EG&G ERM Organization is responsible for executing the work necessary to successfully complete the various ER subprojects. As discussed in Section 2.2, Project Definition and Types of ER Projects, the ER MSA Project has been divided into subprojects to provide a more manageable organization.

The ER project manager designates ER project managers to direct the individual ER subprojects. The term "project manager" is used rather than "summary subproject manager" or "subproject manager" in reference to EG&G personnel responsible for managing the execution of discreet parcels of work identified in the ER MSA Project Summary Work Breakdown Structure (WBS) Levels 4, 5, and 6, per Figure 2-1.

In order to maintain control of an ER subproject, the EG&G ER project manager selects an ER subproject support team. The ER subproject support team is made up of individuals that will contribute to the ER subproject. Depending on the scope of the ER subproject, the support team shall vary. These individuals shall provide a proficient degree of knowledge in their respective areas of expertise in order for the ER subproject to meet its technical, cost, and schedule commitments. The size of the support team should be kept to a minimum, but should be commensurate with the complexity, duration, relative risk, and the magnitude of the project requirements. The support team should help to determine the appropriate technical and managerial approach to the project. A graded approach to assembling and use of the support team should be used depending on the size, complexity, and requirements of the project.

In addition, periodic meetings of the support team, as designated by the EG&G ER project manager, shall be utilized to provide updates on the ER subproject.

2.1.3 Supporting Organizations

The ER subproject incorporates various support organizations throughout its existence. The ER support team participants, as required by the EG&G ER project manager, would include such EG&G M&O organizations as Engineering and Technology; Quality Assurance; Health and Safety; Construction Management; and

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Table 2-1.
Design Management
Division of Responsibilities Matrix

Activity Code	Abbreviated Activity Description	DOE - ERD - SM	DOE - CMO	EG&G - ERM - PM	EG&G - ERM - ES&E	EG&G - ERM - R&R	EG&G - ERM - QA	EG&G - ERM - CP&B	EG&G - ERM - PI&R	EG&G - ERM- OPS	EG&G - CMD	EG&G - PROC	EG&G - Support Services	Design Sub	Vendors	Construction Sub
1.0	PROJECT PLAN/WORK PACKAGE (PP/WP) PHASE															
1.1	Development			A	D	P	P	P		P	P	P	P			
1.1.1	Develop/Issue WAD			A	D			P		P	P		P			
1.2	PP/WP Review/Approval	R		A	D			P								
2.0	FUNCTIONAL DESIGN CRITERIA (FDC) PHASE															
2.1	Development			A	D	P	P	P		P			P	P		
2.1.1	Initiate Risk Assessment			A	D					P			P	P		
2.1.2	Environmental/Waste Planning			A	D								P			
2.1.3	Technical Requirements			A	D		P			P			P	P		
2.2	FDC Review/Approval	R		A	D		R			P			P			
3.0	CONCEPTUAL/TITLE I DESIGN PHASE															
3.1	Development			A	D	P	P	P	P	P	P	P	P	P		
3.1.1	Technical Requirements			A	D		P			P	P		P	P		
3.1.2	Schedule Requirements			A	D			P		P	P	P	P	P		
3.1.3	Cost Requirements			A	D			P		P	P		P	P		

LEGEND:
A - Assigned Authority and Accountability
D - Delegated Responsibility and Authority
R - Review and Approval Required
P - Participation and Assistance as Requested

Table 2-1.
(continued)
Design Management
Division of Responsibilities Matrix

Activity Code	Abbreviated Activity Description	DOE - ERD - SM	DOE - CMO	EG&G - ERM - PM	EG&G - ERM - ES&E	EG&G - ERM - R&R	EG&G - ERM - QA	EG&G - ERM - CP&B	EG&G - ERM - PI&R	EG&G - ERM- OPS	EG&G - CMD	EG&G - PROC	EG&G - Support Services	Design Sub	Vendors	Construction Sub
3.2	Review/Approval	R		A	D		R			P	P	P	P	P		
3.3	Value Engineering	P		A	D	P				P	P		P	P		
3.4	Develop PMP			A	D	P	P	P		P	P	P	P	P		
3.4.1	Approval of PMP	R		A	D		P			P	P		P	P		
3.5	Baseline Change Proposal	P		A	D	P	P	R	P	P		P	P	P		
4.0	TITLE II/TITLE III DESIGN PHASE															
4.1	Develop Title II			A	D	P	P	P	P	P	P	P	P	P		
4.1.1	Final Safety Evaluation			A	D		P			P			P			
4.1.2	Environmental/Waste Planning			A	D					P	P		P			
4.1.3	Health & Safety Planning			A	D					P	P		P			
4.1.4	Final Title II Cost and Schedule Estimate			A	D			R		P	P		P			
4.2	Title III Design/QVP			A	D	P	R			P	P		P			
4.3	Review/Approval Title II/Title III Design	R		A	D		R			P	P	P	P	P		
4.4	Baseline Change Control	P		A	D	P	P	R	P	P	P	P	P	P		
4.5	Finalization of Procurement/Bid Package Documents	P		A	D	P	P	P				R				

LEGEND:
A - Assigned Authority and Accountability
D - Delegated Responsibility and Authority
R - Review and Approval Required
P - Participation and Assistance as Requested

Operations. In addition, subcontracting firms may be utilized in various aspects of the design and construction processes. The success of an ER subproject is dependent on the communication and commitment set forth by all the responsible organizations. The responsible participants from the supporting organizations shall be committed to the ER subproject until their obligations are completed as defined by the EG&G ER project manager.

The technical requirements from the start of development to approval for construction are an intricate part of the ER subproject. The EG&G ER project manager shall designate a project engineer (PE) to assist in the management of the design, normally from the EG&G Environmental Engineering and Technology (EE&T) group. The EE&T PE is responsible for managing engineering and technical efforts of an individual ER subproject. A PE manager from the design organization shall be included on the ER support team and interface with the EE&T PE to provide support through the design process.

The design organization, hereinafter referred to as the A/E, is contracted to perform design services for review and approval by the EG&G ER project manager and support team. The A/E may be an outside subcontractor or internal to EG&G, the M&O organization, and is responsible for performing the design functions.

The specific responsibilities of the EE&T PE are defined on an activity-specific basis but generally include:

- Understand the roles and responsibilities of the ER project manager
- Conduct project design elements and processes in accordance with delegated responsibilities and authority
- Utilize good judgement when making decisions in supporting the ER project manager
- Ensure the proper initiation, conduct, and completion of assigned ER subprojects.

This DMP shall further delineate the requirements and responsibilities of the EE&T group and the A/E with respect to the ER subproject from the standpoints of conceptual/preliminary design (Title I), final design (Title II), and support through the field/construction activities (Title III). The A/E contractor is an essential participant in providing a successful design project. The A/E contractor is responsible for developing and revising the design from concept through completion of construction. With respect to Title III and thereafter the A/E contractor, as contractually stipulated, is in a supporting role to assist with the technical design and provide for changes as required. The requirements and controls set forth for the actual construction and operation phases shall be discussed in the ER Project Construction Management Plan and Operations Requirements Plan, respectively, which are separate IPPs.

2.1.4 Interface Control

The use of the various organizations, for an ER subproject, requires a method to enhance control and denote accountability for the various project phases. The development of an interface control approach shall be established to provide a means to identify, define, and control the technical and administrative relationships of an ER subproject. The development of this plan should utilize the graded approach to provide an adaptable working environment. An interface control plan shall be implemented during the initial phase and continue until construction and testing have been completed for the ER subproject.

The interface control plan provides project management visibility and control over the design and construct phases which will prevent or reduce cost and schedule impacts and ensures that the systems and/or equipment will function when operations commence. The ER project manager shall appoint a designee to arrange an interface control plan.

Interface control planning shall address at a minimum the following considerations, as applicable:

- Define participating organizations and their responsibilities
- Identify plant systems and equipment to be used
- Define plant services required and develop and revise Memoranda of Understanding
- Identify physical plant interface points
- Plant security
- Communication systems, including data forms and computer software
- Emergency response systems
- Waste handling systems
- Environmental planning and control.

2.2 Project Definition and Types of ER Projects

The RFP ER MSA Project is a major effort which has firmly scheduled beginning, intermediate, and ending milestones; prescribed performance requirements; prescribed costs; and close management, planning, and control. To ensure the RFP ER MSA Project work is defined and managed, the use of a WBS matrix is used. The WBS structure is defined further in the ER Project Control System Description.

A WBS is developed for each activity or element of a project at many different levels. The first three levels of the WBS are called the Project Summary WBS (PSWBS) and are typically defined by DOE. The lower levels are defined by the contractor and are called the Contract WBS (CWBS). The number of levels should be based on a graded approach, depending on the size, complexity, and requirements of the project. The WBS should be kept current throughout the life of a project. Uses of the WBS include:

- Planning and budgeting
- Funding
- Cost estimating
- Scheduling
- Performance measurement
- Configuration management
- Integrated logistic support
- Test and evaluation
- Systems engineering.

An illustration of the WBS is shown in Figure 2-1.

The RFP ER MSA project mission has been organized into five general areas termed summary subproject levels. The five summary subproject levels are: Remedial Actions (RAs); Decontamination and Decommissioning (D&D); Program Management Support; Surveillance and Monitoring; and Treatment, Storage, and Disposal (TSD) facilities. These five summary subproject levels are divided further into subproject levels. The subproject levels break the work into manageable pieces. Therefore, the term subproject is used within different levels of the WBS. Although the term is interchangeable, the different subproject levels maintain separate administrative roles and authority. Throughout the DMP, the term subproject and project are used interchangeably to define the work requiring action. The term EG&G ER project manager shall be used to define the individual responsible for a defined subproject indicative throughout the WBS.

There are various phases to an ER subproject which may be summarized to design, construction, and operation. The DMP shall discuss initial development (Functional Design Requirements); the conceptual/preliminary design (Title I); final remedial and detailed design (Title II); and support through the field/construction activities (Title III). The design elements are essential throughout the ER subproject; further development of the

construction and operation phases shall be detailed in separate ER IPPs, the Construction Management Plan and Operations Requirements Plan, respectively.

There are currently five primary project processes within the ER Program:

1. General Project Management
2. Integrated CERCLA/RCRA Processes
3. NEPA Requirements and Documentation
4. ES&H and Waste Management Requirements
5. Safety and Risk Management Requirements.

Figure 2-2 presents a general flow diagram of the interrelationships of these five integrated project processes. This diagram shows the important overall procedural references as well as the details of the elements that comprise the process steps. The diagram reflects the integration of directives from the RFP IAG, regulatory drivers (including NEPA, CERCLA, and RCRA), site/specific requirements, and general EG&G management practices derived from the DOE Order 4700.1 project management system. The task lines of this diagram are a combination of DOE and site project schedules.

More specific types of ER site activities that are mandated by regulatory requirements or by routine management may be considered projects. There are three primary drivers of these projects:

1. DOE transfer of activities from active status to the responsibility of Environmental Restoration and Waste Management
2. CERCLA/RCRA
3. IAG.

Five basic classifications or specific types of projects are applicable to RFP:

1. CERCLA
   - Remedial Investigation (RI)
   - Feasibility Study (FS)
   - Remedial Design (RD)
   - Remedial Action (RA)
2. CERCLA Removal Action
3. Interim Measure/Interim Remedial Action (IM/IRA) under IAG (integrated RCRA/CERCLA remediation)
4. RCRA Closure (including TSD)
5. Non-regulatory based projects per DOE Order 4700.1.

2.3 Graded Approach

Each ER subproject has individual requirements and criteria. The individuality of these subprojects places different constraints on the necessary review and approval. The use of a graded approach process will provide a means to allow for adequate reviews and evaluations for the individual projects without using excessive control requirements.

The EG&G ER project manager and the ER support team, particularly the design organization, shall initially review the scope of the ER subproject. Through this screening process the method for evaluation and approval of the project requirements shall be distinguished. Factors utilized in this screening include complexity, magnitude, schedule, risk, and cost of the project.

A QA program must be established and implemented for ER design projects using a graded approach. The Quality Level of the program should be consistent with the potential (risk) impact of the items or activities on the safe and reliable design requirements for project operability. The risk category is determined through the risk assessment process.

For instance, as developed in the Quality Assurance Program Description Plan (QAPD), safety classification of the ER subproject shall determine the level of review. There are two categories defined in the QAPD, non-safety class (NSC) and safety class (SC). If the system is designated as SC, the failure of the system could adversely affect a vital safety function as defined by Procedure 2-DO3-COEM-6.3.6, Classification of Systems, Components, and Parts. Due to the consequences of failure, a SC system shall require a more stringent review in order to ensure the design is appropriate and maintains the safety envelope of the system. The designation of an NSC system does not require the level of review as for a SC system. With this type of flexibility the review and approval process allows for additional control, such as combining Conceptual and Title I designs to reduce unnecessary review periods. The main advantage of the graded approach is to increase efficiency without jeopardizing the requirements of the ER subproject.

2.4 Project Initiation and Planning

The purpose of project initiation and planning is to assemble the basic project requirements and objectives in a format which leads to project authorization. The initial scope and estimated costs of a project must be developed and documented for funding and for input to the conceptual design. Project initiation can come from either within the ER Program or be requested by DOE.

The approval steps and subsequent amount of documentation required for authorization will be determined based on the approving organizations. Initial planning documentation should be developed that presents the technical, cost, and schedule input to a project. Technical input can include items such as design requirements, codes, and standards. A graded approach should be used for developing initial planning documents, depending on the size, complexity, and requirements of the project. The initial planning documentation is necessary to establish approved scope and technical performance requirements, schedules, resource plans, levels of responsibility and authority, organizational interfaces, implementation plans, and accountability. This documentation can include Functional Requirements, Change Proposals, Rough Order of Magnitude Estimates, etc.

The documentation prepared during the planning stages of a project should provide a clear picture of:

- Project goals and objectives
- Project justification
- Description of work to be done
- Potential problems
- Preliminary technical baseline
- Summary of scheduling requirements
- Potential problems
- Total Estimated Cost (TEC).

In addition, this initiating documentation should be written to provide not only sufficient information for project authorization, but also provide the basis for developing the subproject project plans and project management plans as applicable.

2.5 Justification of Project Needs and Requirements

The EE&T group provides the project objective/justification necessary for the ER project design organization. Project needs and requirements must be justified in order to acquire authorization and funding. Information is required for annual budgeting and allocation of funding from the MSA. DOE Order 4700.1 provides guidance for project initiation and planning. Documentation of the project justification should include the following:

- Purpose
- Program mission/goal
- Project objectives
- Organization
- Risk assessment.

The justification should also include the

regulatory driver and/or IAG driver. Within the IAG, the established schedules for performance of ER remedial activities and penalties for failure to comply are discussed.

2.6 Authorization

The EG&G ER project manager and the ER support team shall evaluate the ER subproject in order to assign the proper authorization and approval criteria. The level of detail and format for the documentation of information for project authorization is project-specific. This information can include:

- Support of ERP mission
- Project objectives
- Preliminary cost baseline
- Preliminary schedule baseline
- Preliminary technical baseline
- Project risk analysis
- Identification of project organization
- Work breakdown structure.

Factors that determine which organizations/individuals must approve a project may include:

- Project cost
- Project funding
- Health and Safety issues
- Required input from outside contractors
- Schedule limitations
- High project risk due to impending fines from regulators
- Quality Assurance.

Activity Data Sheets (ADSs), WBSs, Work Packages (WPs), and the Five Year Plan (FYP) provide authorization for out year budgeting of projects.

The DOE Environmental Restoration and Waste Management FYP is the primary planning document for DOE environmental restoration and waste management activities. The FYP reports the results of a comprehensive planning process that involves stakeholders, including the entire EM organization, regulatory agencies, and the general public. The FYP is used to inform these same stakeholders of near-term DOE plans for environmental restoration and waste management. The FYP discusses EM commitments, accomplishments and setbacks, and includes site-specific summaries.

ADSs are the basic building blocks for both the FYP and the EM program. ADSs identify all projects, including appropriate information on priority and funding levels, budget reporting codes, and a short narrative description. ADSs also meet programmatic planning and reporting requirements. The information in the ADSs affects all areas of planning and budgeting, from setting objectives to evaluating and validating budget requirements. ADSs are the principal planning and budgeting informational link between the Field Offices and Headquarters. ADSs provide information about scope of work, funding estimates, regulatory drivers, milestones, and other data.

Work Packages define the budgetary and schedule requirements of a project or of the subprojects that make up a project. A work package includes a schedule summary, a change control log, scope summaries, and planning assumptions for the current fiscal year and for out years, requirements, drivers, deliverables, milestones, and interrelationships with other work packages.

Further discussion on the ER program work authorization is in the ER Project Control System Description.

2.7 Acquisition or Assistance Planning

Acquisition or assistance planning should be performed on a graded basis depending on the size, complexity, and requirements of a project. An acquisition strategy is a brief description of the contractual basis for the project contained in the PP. Acquisition planning is a conversion of the strategy to a viable, detailed plan for implementation. This is discussed further in the ER Acquisition Strategy Plan.

2.8 Work Authorization

ER subprojects require support services from various organizations. A graded approach should be used for retaining support services. The ER project manager, along with the ER subproject support team, will define the various support organizations. To request these resources, a work authorization document (WAD) shall be utilized. The WAD provides details to the requesting support group such as the technical scope and time schedule of the ER subproject, expected time duration of requested support, and authorization. The WAD is a formal document which establishes agreement between the authorizing and support organizations for the requested services. In addition to the WAD, preliminary engineering support services may require the use of an Engineering Support Request (ESR).

2.9 ER Subproject Work Package

The ER Subproject Work Package (WP) describes the project and establishes project baselines against which overall progress of the project and the effectiveness of its management will be measured. The WP is synonymous with the terminology for a specific project plan. During the preliminary phase of a ER subproject the use of a WP may be determined as a required document in order to provide a summary of the magnitude of the project. A comprehensive WP typically will include such information as:

- Mission Need and Objectives
- Technical Plan
- Risk Assessment
- Management Approach
- Acquisition Strategy
- Project Schedule
- Resources Plan
- Baselines
- Project Charter.

The development of a WP should be based on a graded approach, depending on the size, complexity, and requirements of a project. The WP is an evolving document that covers the project from initiation to completion, and will provide information for the later development of the PMP, as developed through the graded approach, per DOE Order 4700.1 for each specific ER subproject.

2.10 Environmental Planning

Routine environmental documentation is required during the planning and implementation of a project. Proper and adequate environmental planning is critical to the project management process. Many DOE Orders, such as DOE Order 5440.1E, are applicable to environmental compliance and protection for integrated and "phased" compliance. All projects are reviewed by the appropriate EG&G RFP and DOE site environmental management organizations. These reviews are intended to characterize and quantify the solid wastes, liquid effluents, and airborne emissions that can be predicted to result from the project activities early in the planning process. This information provides the basis for determination of environmental requirements for design, defines waste collection and treatment requirements, and identifies permit requirements; promotes the timely preparation of permit requirements of the various environmental regulations; and ensures that the provisions of NEPA are implemented.

The primary regulatory drivers for environmental planning and compliance are CERCLA, RCRA, and NEPA, as well as the IAG. Other environmental regulations must also be considered including those for air pollution control (including Clean Air Act), water pollution control (including Clean Water Act), solid waste management, and compliance with site negotiated agreements. Many environmentally-related plans, requirements, and permits must be considered when developing a project strategy. In addition, cost and schedule baselines should be established for environmental planning in accordance with DOE Order 4700.1.

2.11 Waste Management Planning

Management of wastes generated from ER projects must be managed in accordance with DOE guidelines and applicable regulations. Planning for waste management must occur during the planning and implementation of projects. Proper waste transport, treatment, storage, and/or disposal must be ensured for the project. In general, waste can be grouped into three categories:

1. Wastes generated by previous activities associated with the area affected by the project

2. Wastes currently being generated in the area affected by the project

3. New wastes that will be generated by the actions to be conducted during the evolution of the project.

RFP wastes are also classified as hazardous (RCRA) or nonhazardous (non-RCRA) by sampling and analysis. Radioactive waste can be grouped into three categories:

1. High level waste
2. Transuranic waste
3. Low-level waste.

DOE Order 5820.2A requires development of a site radioactive waste management plan. Mixed waste requires special planning and management as well as procedures to try to minimize the generation of this type of waste. Radioactive and hazardous wastes should generally be segregated to the extent possible.

A Waste Sampling and Analysis Plan, as required, should be prepared early in the project planning process so that all project-generated wastes can be properly characterized. Waste minimization is a primary goal of DOE and RFP, and therefore, all attempts should be made to minimize the generation of waste associated with an ER project. In the event that a spill of waste material occurs during the conduct of a project, the incident should be reported immediately to the appropriate onsite organizations.

2.12 Safety and Health Protection and Planning

Routine health and safety planning and documentation is required during the planning and implementation of an ER project. Various DOE Orders provide guidance and direction for safety and health planning and analysis. Safety analyses and documentation are to be developed early in the project planning process, and revised accordingly as the project proceeds. Safety Assessments should be conducted for the project in accordance with DOE Order 5480.23. In addition, through the development of a Preliminary Safety Evaluation (PSE), a Hazard Categorization should also be specified for the project in accordance with DOE Order 5480.23.

In general, ER Program requirements for personal protection may be categorized into three areas:

1. Health physics and radiation protection
2. Industrial hygiene
3. Industrial safety.

Health Physics Training, Radiation Work Permits, and proper dosimetry equipment is required for working in radiation areas. Technical Safety Requirements (TSRs) are developed from information in the Risk Assessment and should be prepared prior to the field activity phase (DOE Order 5480.22).

Industrial hygiene programs must provide worker training and medical monitoring as appropriate and must identify, evaluate, and control the environmental factors and stresses found in the workplace. These environmental factors and stresses are grouped into four major categories: (1) chemical, (2) physical, (3) biological, and (4) ergonomic. Additionally, a specific program for the control of carcinogens may also be required. Further information on industrial hygiene programs is presented in DOE

Order 5480.10.

Industrial safety programs encompass occupational safety, construction safety, and fire protection requirements, and are addressed by DOE Order 5480.9. Fire Protection requirements are presented in DOE Order 5480.7. Further discussion on the Health and Safety Programs with respect to the ER project can be found in the ER Environmental, Health, and Safety Plan.

2.13 Project Risk Assessment, Management, and Reporting

The risks associated with projects must be evaluated, documented, and integrated into the project management process. A graded approach should be used for risk evaluation and management of projects. DOE guidance (DOE Order 4700.1) requires that projects be assessed for technical risks during project planning, and that project plans should include risk assessments. It is generally appropriate to evaluate risks during three distinct intervals during the life of a project which generally correspond to the design, operational, and decommissioning phases. Risk evaluations identify critical systems, subsystems, and other factors which require focused work and resolution and determine if hazards, failures, or concerns could adversely impact one or more of the following:

- The health and safety of personnel and the public
- The on-site and off-site environment
- The constructability, operability, and maintainability of the project within legal, regulatory, and corporate compliance and commitment boundaries
- The economics of operation of RFP.

Types of risks that should be addressed are technical; schedule and cost; environmental, safety, and health; regulatory; utility; and institutional impediments. DOE Order 4700.1 also states that a basic objective of conceptual design is to identify and quantify any project risks. Information derived from the Safety Analyses (SAs) is also used as input to and confirmation of the risk evaluation.

2.14 Functional Design Criteria

Functional Design Criteria (FDC) is a statement of the functional parameters that the project must meet. The EE&T group provides the initial functional design criteria. Design criteria are typically first developed at the time the need for the project is initiated. An Engineering Study (ES) is usually first prepared that includes the initial preliminary engineering and feasibility analysis. The ES evaluates alternatives for new projects, establishes parameters such as new equipment required, evaluates the availability of existing facilities to accomplish the project objectives, selects a preferred alternative, and estimates the project cost and schedule. A graded approach should be used to determine if an ES is required. The functional design criteria is the statement of functional parameters that the project must meet, and are combined into a single document, the FDC Document. The development of functional requirements and criteria is associated with the Systems Engineering process (DOE Order 4700.1)

2.15 Establishment of Functional Design Criteria Documents

Functional design criteria must be developed for most ER projects during the preliminary engineering phase and documented in an FDC document. The FDC presents the functional parameters for the project, which include the functional requirements, functional design criteria, and functional regulatory bases. The information and criteria in the FDC are further developed, validated, and expanded during the development of the Conceptual Design Report (CDR).

The requirements and criteria should address design concepts such as minimum performance

capabilities/margins, design basis criteria, diversity, reliability, independence, redundance, separation, and health and safety protection. A graded approach should be used for the development of these criteria and requirements. Developmental studies, including a function analysis and a functional allocation, should also be performed as appropriate.

A more detailed procedure is to be written to provide instruction on the development of an FDC for an ER subproject.

2.16 System Engineering Management Plan

As defined in DOE Order 4700.1, systems engineering is the concept of the management of the engineering and technical effort required to transform the project into an operational system. It includes the following elements:

- Engineering required to define the system performance parameters and the configuration to best satisfy the project objectives
- Planning and control of technical tasks
- Integration of the engineering specialties
- Management of a totally integrated design effort to meet cost, schedule, and technical objectives of the system engineering process.

Systems engineering projects are usually based on Functional Performance Requirements, Functional Design Criteria, Project Specifications, and Evaluation of Technical Alternatives. General requirements addressing Mission Need, Project Objectives, and Constraints are prepared by DOE. These requirements provide the basis for the systems engineering process. System engineering also incorporates six process elements:

1. Functional analysis
2. Functional allocation
3. Design synthesis and integration
4. System definition
5. Evaluation and optimization
6. Building, testing, and demonstration of system.

For MSAs and major projects, a Systems Engineering Management Plan (SEMP) must be developed and adhered to. The SEMP for the RFP ER MSA is presently under development.

2.17 Subcontracting Arrangements for A/E Project Orders

For many projects, scoping, planning, selection, and management of A/E subcontractors are required. As designated in Section 2.1.3, the A/E contractor may be an outside organization/company or internal to EG&G, the M&O. Many different types of contracts can be used to retain subcontractors, including cost plus fixed fee (CPFF), cost plus incentive fee (CPIF), fixed price (FP), and Master Task Subcontract (MTS). A Statement of Work (SOW) must be prepared that forms the basis for the subcontractors proposal as well as for the technical work to be performed. The SOW typically includes:

1. Project background information
2. References for required documents
3. Detailed task descriptions
4. Schedule of deliverables
5. QA requirements
6. Reporting requirements.

A cost estimate for the work to be performed and a purchase request must also be prepared. EG&G Procurement will establish the contract after developing a bidder's list, using either prequalified A/E firms, the MTS system, or competitive bidding. The design project may also be set aside for small or disadvantaged businesses. A firm will be selected based on technical merit and cost considerations as presented in the proposals.

SECTION 3
CONCEPTUAL/TITLE I DESIGN

3.0 CONCEPTUAL/TITLE I DESIGN

3.1 Design Verification and Control

The various phases of an ER subproject require verification and administrative control in order to verify the adequacy of the intended design to meet the technical, cost, and schedule baselines of the project. The following subsections describe design elements and controls which are essential to the development of the complete design of a project and are not limited to the Conceptual/Title I design phase. With respect to the DMP, these subjects pertain to the design process from conception to approval, including revisions and changes. The actual construction and operation phases are detailed in the ER Construction Management Implementation Plan and ER Operations Requirements Plan, respectively.

The integration of these principles shall be conducted by the ER project manager and ER support team by identifying and establishing the review processes necessary for the elements in order to meet requirements. In conjunction with the application of these subjects, a graded approach shall be utilized to provide efficient methods in order to accomplish an ER subproject. The design elements utilizing control and verification include Design Reviews, Calculations, and Qualifications Tests. The design controls discussed include Change Control, Engineering Surveillance, Design Documentation Control, and Design Request Variances.

3.1.1 Design Summaries and Reviews

As a part of the overall management of a project, periodic design reviews are to be performed during the development from preliminary to definitive design: to assure that project development and design are proceeding in an orderly manner to assure the project will satisfy program and operating objectives; to review performance, schedules, and costs; to identify potential and real problem areas; and to initiate action for timely solutions and corrective measures.

The ER project manager and the support team shall determine the required reviews and the organizations responsible for review. The use of this graded approach provides a means to increase efficiency of the ER subproject without jeopardizing requirements and imposing unnecessary evaluations. On a given typical ER, subproject technical/design reviews are optional throughout the subproject and may be implemented and conducted during such phases as:

Functional Design Criteria Review - Conducted to assess progress in defining system functional design criteria and in implementing other engineering management activity.

Preliminary Design (Conceptual Design) Review - Conducted in order to evaluate the optimization and completeness of the technical requirements; ensure a technical understanding among all participants; assess the system engineering process which produced the technical requirements; evaluate progress of selected design approach; determine design compatibility of the design specifications; and establish the existence and compatibility of the physical and functional interfaces among facilities, hardware, software, personnel, and procedures.

Definitive Design (Title II) Review - Conducted in order to determine that the detailed design satisfies the performance and engineering specialty requirements for the development specifications; establish the detail design compatibility; assess productivity and risk areas (on a technical, cost, and schedule basis); and review the preliminary product specifications.

Subcontractor/Vendor Review - Conducted for contracts that require technical efforts by any system subcontractor are reviewed.

Reviews should be performed on a scheduled basis by qualified individuals or organizations that are independent from those performing the

actual design work. For small projects, a single 100% design completion review is required. For larger, more complex projects, multiple in progress reviews may be required (two at 50% and 100%, or three at 30%, 65%, and 100% design completion). Manager Reviews, Management Reviews, Independent Reviews, and Data Reviews can also be performed when applicable or required.

3.1.2 Calculations

The preparation of calculations is the responsibility of the A/E contractor. Calculations shall be checked, reviewed, signed and dated by the designer and the checker, and completed in all respects. The final calculation package shall be reviewed by the responsible design organization manager or appointed designee. In addition, if the A/E contractor is a subcontractor, the applicable EG&G design organization shall have approval authority.

The verification of the calculation may be performed utilizing an alternative method of calculations or analyses. The appropriateness of assumptions, input data used, and the computer program or other calculation method used in the original analysis shall also be reviewed. The control and verification process for calculations shall be incorporated into ER Procedure 2-G03-ER-ADM-03.01, Verification and Control of Calculations and Technical Reports.

3.1.3 Qualifications Testing

Qualifications Testing is essential in verifying a design is adequate and performs its function at an acceptable level. The requirements for qualification tests are provided by the design organization (A/E contractor), but the performance and verification responsibilities of the test are dependent on the phase of the project at which the test is required. The use of testing for verification of technical adequacy will be discussed in the ER Test and Evaluation Implementation Plan.

3.1.4 Change Control

Changes to final design, field changes, or modifications shall be justified and subject to design control measures commensurate with the original design. Changes shall be approved by the original design organization or a technically qualified designate. Change control is a prime factor in project management and should be maintained at all times, including during project execution. The EG&G ER project manager shall provide final approval for a change.

Design change control and configuration management include development of a configuration control plan, identification and control of configuration elements, preparation of change proposals, and recording and reporting requirements. The general objectives of the change control process are to:

1. Assure cost, schedule, and scope baselines are clearly defined, documented and approved

2. Assure baseline changes are defined, documented, and approved, and authority and responsibilities for such approval are delineated

3. Provide assurance that decisions are made at the appropriate management level

4. Enhance accountability and traceability in the DOE decision-making process.

Configuration management/control is the process designed to determine and control baselines. This control provides a means to ensure proposed changes adequately satisfy the technical and operational requirements of the project. The ER Configuration Management Plan presents a more detailed discussion of design change control and configuration management.

3.1.5 Engineering Surveillance

Upon approval of a design, construction is sequentially the next phase. During the construction phase various field conditions will exist. These conditions may result in changes to the approved design. These type of changes or additional problems found in the design, whether technical or administrative, shall be documented. The EG&G ER project manager shall assign a designee to assist in organizing and distributing information on the encountered problems. Both solutions to problems and valuable information which has been successful are to be incorporated. This process is typical of a lessons learned program. To assist in providing further insight and elimination of problems, a lessons learned program shall be utilized as annotated in the ER Administrative Control Requirements Implementation Plan.

3.1.6 Design Documentation Control

The control of documentation provides an efficient and organized system to retrieve and disseminate information. The documentation under control shall include such items as drawings, procedures, calculations, and tests. Control of documentation is directed in the Administrative Control Requirements (ACR) Implementation Plan.

In addition to document control, establishment of a means to identify classified, unclassified, and unclassified controlled nuclear information (UCNI) is necessary. The majority of ER subprojects will not be classified; therefore, to alleviate the use of unnecessary classification during the development process, provisions for waivers on ER projects will be utilized as permitted in DOE Order 5650.2B, Identification of Classified Information.

3.1.7 Design Variance Request

During the development of the ER subproject design, occasionally a DOE order or standard may define additional requirements which may be justified as not necessary and allowance for deviation permitted. In order to deviate from the published documentation, a justification must be prepared and approved.

The preparation of this design variance request is the responsibility of the ER project manager and the applicable ERM organization submitting the request. This request, in the form of a formal correspondence, shall contain a brief description of the DOE order or standard and a supporting justification. In addition, this design variance request shall require, as a minimum, review and approval from the following representatives or associated designees:

- Manager of the responsible ER organization
- ER project manager
- DOE subproject manager.

Upon approval from the applicable organizations, the DOE order or standard may be deviated and the design variance request incorporated into the design as supporting documentation.

3.2 Evaluation of Technical Alternatives and Value Engineering

Technical alternatives, either for the whole project and system or for components of the system, must be compared and evaluated in order to optimize the design and the system. This is generally an iterative process to meet the requirements of the project. Types of studies that may be performed as appropriate using a graded approach include:

- Make/Buy Options analyses
- Reliability, availability, and maintainability (RAM) analyses
- Tradeoff and alternative studies
- Best Available Technology (BAT) studies

- Cost/effectiveness analyses
- System effectiveness modeling.

In many cases, alternative/innovative technologies are desirable and may be recommended. Risk assessments should also be performed during the evaluation of technical alternatives (DOE Order 4700.1). The CERCLA process for evaluation of technical alternatives includes the FS and treatability studies.

Value engineering (VE) is typically required for major ER projects. This is an organized effort, directed by a person trained in VE techniques, to analyze the functions of systems, equipment, facilities, services, and supplies for the purpose of achieving the essential functions at the lowest life cycle cost consistent with required performance, reliability, availability, quality, and safety. Terms such as value analysis, value control, value improvement, value management, and functional analysis are synonymous.

VE should be implemented early in the design process, preferably during the Conceptual/Title I design phase. VE should be performed according to a graded approach. If VE is required, it must be performed before the initiation of Title II design. DOE Order 4010.1A presents the procedures to be used for VE.

3.3 Preparation of Environmental Plans and Permits

Project environmental plans and documentation are required by applicable Federal, state, and local policies, programs, and regulations. An integrated and phased compliance approach is recommended by DOE. A comprehensive review of all applicable requirements and the integration of the requirements into an efficient time schedule, including identification of critical paths, is required. The various required environmental reviews (especially early review under NEPA) must be coordinated with the appropriate phases of the project. Potential environmental constraints must also be analyzed and appropriate mitigation measures must be developed to address those constraints. An ES&H plan is also prepared as an addendum to the PMP for the ER subprojects, as applicable.

3.4 Environmental Safety and Health Work Survey and Program Analyses

Environmental, safety, and health (ES&H) protection requirements must be incorporated into the planning and design of actions to be conducted during construction and/or remedial field activities. Timely ES&H planning allows items of concern to be addressed at an early date and prevents project delays. A survey of the ES&H requirements for the work to be conducted on a project must be performed, and the information from this survey must be incorporated into the project design. DOE Order 4700.1 requires the establishment and implementation of a comprehensive health and safety program for ER projects. This program must be planned early in the project planning process. The survey should be documented for design purposes as part of the CDR and should remain with the design data package and be updated throughout the CDR Review and the Title II Design Review.

The major sources of ES&H requirements are DOE and RFP safety and health directives, NEPA, and RCRA/CERCLA. ES&H compliance planning must be integrated into the appropriate phase of project development. For example, an Environmental Impact Statement (EIS) may be performed using preliminary design information, while permit applications require a more detailed level of design information. Design criteria must be formulated to reflect ES&H concerns.

Required permits and notifications include a Permit for Hazardous Work, Radiation Work Permit, FMPC Work Permit, Construction Waste Documentation, and others.

NEPA documentation requirements for DOE projects are mandated by 10 CFR 1021 and

DOE Order 5441.1E. Environmental Evaluation Checklists (EECs) and Environmental Assessments (EAs) should be prepared prior to beginning Title II design.

Other ES&H requirements that must be considered when planning Title III field activities include the following:

- Permits for Hazardous Work
- Project-Specific Health and Safety Plans
- Waste Sampling Plans
- Waste Minimization Plans.

Prior planning for waste management will help prevent project delays. The topics that must be addressed include the following:

- Waste sampling and analysis
- Construction waste management
- Control of waste generation
- Construction/Remedial Action waste handling
- Contingency for emergency/unplanned asbestos work
- Radioactive waste management impacts
- Disposal of non-contaminated waste
- Waste/material packing and use of containers
- Material disposition.

Personnel safety and protection measures must be incorporated into project design, planning, and field activities as early in the project as practicable. RFP programs for personnel protection during field activities fall into one of three categories: (1) Health Physics and Radiation Protection, (2) Industrial Hygiene, and (3) Industrial Safety.

Further discussion on the Health and Safety Programs with respect to the ER project can be found in the ER Environmental, Health, and Safety Plan.

3.5 Human Factors Engineering

The primary function of Human Factors Engineering (HFE) in design management is to improve human performance through enhancements in the work environment and human/machine interfaces. Enhancements are formulated to reduce human error and its consequences, increase productivity and product quality, lower cost, reduce equipment and property damage, and further improve the safe operation and maintenance of a facility. Typically, both generic and specific items to be considered in the development of HFE requirements are human dimensions, component controls, work environment, warning systems, equipment layout, communication systems, protective equipment, display devices, labels, and maintainability.

The requirements for conducting HFE during the design process are that the analysis is appropriate to the level of importance of the system, and the level of risk associated with the system failure be determined as an integral part of the design process. Through the graded approach, each individual project shall be reviewed to identify if further HFE evaluation is necessary. This screening process will eliminate unnecessary review and evaluation.

3.6 Project Cost Estimating

Cost estimating is required for many phases of a typical ER design project. Total Estimated Costs (TEC) are discussed in DOE Orders 2200.6, 5100.3, and 5700.2C, and include two specific types: (1) Total Estimated Construction Costs (TECC) and (2) Total Project Costs (TPC). Six techniques are used for preparing cost estimates:

1. Bottom-up
2. Specific Analogy
3. Parametric
4. Cost Review and Update
5. Trend Analysis
6. Expert Opinion.

For the ER subprojects, the following types of costs estimates may be utilized:

1. Planning/Feasibility Study Cost Estimate

2. Conceptual/Title I Design Cost Estimate
3. Title II/Government Cost Estimate.

Cost estimates should be broken down by the WBS when feasible. Costs should be continually revised and updated as appropriate as the project proceeds through the more detailed design phases.

Procedures for estimating project costs are presented in ER Estimation Handbook.

3.7 Davis-Bacon Determinations

In compliance with the Davis-Bacon Act, for any federally funded project in excess of $2,000 in total cost, a Davis-Bacon submittal must be prepared after funding is authorized and prior to the Title II design and submitted to DOE for determination. The Davis-Bacon Act ensures that craft minimum wages determined by the Federal government will be enforced on federally funded construction projects. The applicability of these regulations to a project will ultimately determine whether the work will be performed by a construction contractor or by the maintenance work force of the site operating contractor. A graded approach should be used to develop the information in the submittal package.

3.8 Preparation of Conceptual/Title I Design

Conceptual design is the formative engineering stage of a system, process, or facility. Conceptual design is based on user requirements established and accepted by management and establishes the location, size, capacity, and functional need of the project. Title I design is the preliminary design phase of a project which utilizes the conceptual design and design criteria to develop design information through the 20 to 30 percent design completion milestone. The purpose of the Title I design phase is to firmly set the project scope and features and further develop the project cost and schedule. The scope of the Title I design phase includes development, completion, and/or expansion of multiple components of the project design.

As discusssed in DOE Order 4700.1, for the ER Project designated as an MSA, the development of the conceptual and preliminary design phases is not required to be individual transition points with respect to the graded approach method. Therefore, for the purpose of the ER project, it is assumed that conceptual design and Title I design are combined, unless otherwise designed by the ER project manager. The terms Conceptual/Title I and CDR shall be utilized throughout this document to define the conceptual and preliminary phases and associated documentation.

A CDR is a deliverable document issued for review consisting of an overview and record of the preliminary design and project management planning which is devleoped in the conceptual and Title I design phase. Title I Design Review is the final step in the Title I process before proceeding with the Title II design phase. Preparation of a CDR requires compilation of Conceptual and Title I design information, preparation of Title I design cost estimates, and finally, preparation of the Design Report utilizing specific criteria. The preparation of a CDR is one of the key elements of the preliminary design phase of a project. The CDR is a summary of the Conceptual and Title I design results, containing the conclusion and recommendations reached as a result of the design. It provides guidance for the Title II design. The information and criteria in the FDC document are further developed, validated, and expanded in the CDR. The CDR provides detailed information on the functional criteria. CDRs can be prepared by operating contractors, on-site service contractors, or by A/E firms. CDRs typically present the 20 to 30 percent design presentations. A graded approach should be used for the development of the CDR, depending on the size, complexity, and requirements of the project.

Conceptual/Title I design and engineering processes are executed within the framework of the DOE Project Mangemnet System. Project

design criteria define the project scope, construction features and requirements, and design parameters; all applicable codes, standards, and regulations; and quality assurance and other requirements. CDR tasks include preparation of preliminary planning and engineering studies, preliminary drawings and outline specifications, life-cycle cost analysis, preliminary cost estimates, and scheduling for project completion. Identification of long-lead procurement items and analysis of risk also occur during CDR.

The overall objectives of the Conceptual/Title I (and Title II) design efforts are to:

- Achieve minimum project costs consistent with programmatic, environmental, security, and safety requirements
- Ensure technical adequacy
- Provide for optimum economy in operation and maintenance
- Assure that appropriate consideration is given to the project in relation to expected period of use, good engineering and construction practices, energy conservation, decontamination and decommissioning, quality assurance requirements, and the appearance and ergonomics of completed projects.

CDRs and associated documentation may be prepared in-house or by an A/E contractor. At approximately 15 to 20 percent completion of the CDR, project baselines should be issued for cost, schedule, and technical. These baselines may be modified as new information becomes available.

Conceptual/Title I design includes the development of Title I Design Estimates. These estimates should include the following criteria:

- All preliminary drawings
- Outline specifications
- Data sheets
- Bills of materials
- Schedule of refinements
- Definitions of scope
- Methods of performance
- Codes from prior estimates
- Codes and standards
- ED&I costs.

For environmental remediation projects, the Record of Decision (ROD) is to be completed before entering into Title II design. A more complete design may also be completed under Conceptual/Title I in order to minimize the time requirements of Title II design.

The Conceptual/Title I design phase has the following goals:

- To freeze project scope and features
- To develop costs and schedules
- To ensure that the following are addressed in Title I design:
  - Tradeoff studies and evaluation of alternative designs
  - Establishment of quality levels
  - Expansion of conceptual drawings and development of needed new drawings
  - Development of outline specifications for construction, equipment procurement, compliance with DOE 6430.1A, and other factors.

Completion of the CDR involves the development in greater detail of design criteria, drawings, cost estimates, project schedules, project scope, outline specifications, and evaluations of health, safety, and environmental concerns. To ensure adequate direction and monitoring of the design contractor's effort, the design must be coordinated between the EG&G ER project manager and the design A/E.

CDRs are prepared during the preliminary design project phase. A CDR serves as an

overview and record document of project management planning, compiles completed Conceptual/Title I design, and compiles project information that assists in program planning and improving policy and criteria guidance for future projects. Approval of the CDR is required before initiation of Title II design.

DOE Order 4700.1 requires the conduct of a number of environmental compliance activities during preliminary and definitive design. These include the following:

- Development of NEPA documentation
- Conduct of Federal consultative reviews
- Begin preparation of Federal and state environmental Permits to Install
- Begin preparation of Federal and state environmental Permits to Operate
- Preparation of modification to existing environmental permits affected by the project.

The concept of Systems Engineering, as presented in DOE Order 4700.1, should be considered by both the project manager and the design A/E throughout the development of preliminary and detailed design.

A procedure is being developed that discusses the development of Conceptual/Title I design and the CDR in greater detail.

3.9 Design Summaries and Reviews

The ER project manager and the support team shall determine the required reviews and the organizations responsible for review. The use of this graded approach provides a means to increase efficiency of the ER subproject without jeopardizing requirements and imposing unnecessary evaluations. Design summaries and reviews are required during the conceptual design phase of a project. The objectives of design review are to:

- Assure that project development and design are proceeding in an orderly manner
- Assure the project will satisfy program and operating objectives
- Review performance, schedules, and costs
- Identify potential and real problem areas
- Initiate action for timely solutions and corrective measures.

Design reviews should verify that:

- The design inputs (e.g., functional design criteria) were correctly selected
- Assumptions necessary to perform the design activity were reasonable and adequately designed
- Appropriate design methods were used
- The design outputs were reasonable when compared with the design inputs
- Necessary design controls were specified.

3.10 CDR Reviews

The CDR review is a systematic evaluation of the preliminary design to establish the adequacy

of the design criteria and to ensure that the design satisfies the design criteria; potential problems are identified; and responsibility for problem resolution is assigned, scheduled, and completed. Design reviews are an element of quality assurance required by DOE Order 5700.6C. The ER project manager, along with the ER support team, is responsible for the planning, preparation, and coordination of CDR reviews.

The CDR review is the final step in the CDR process, providing feedback and input into the design before initiation of Title II design. This reivew is necessary for initiation of Title II design and for program planning, policy improvement, and future guidance. CDR review is conducted in order to:

- Evaluate the progress, technical adequacy, and risk resolution of the selected design approach
- Determine the design compatibility with performance and engineering specialty requirements of the development specifications
- Establish the existence and compatibility of the physical and functional interfaces among facilities, hardware, software, personnel, and procedures.

During the CDR review, final design outputs are reviewed, as appropriate, for overall health, safety, environmental concerns, fire protection, performance, operability, productivity, maintainability, reliability, energy conservation, overall value, cost and procurement evaluation, and quality assurance evaluations. All comments from the CDR reviewers will either be incorporated into the design or resolved with the reviewer. Comments from DOE should be received and incorporated as soon as possible after the review meeting.

Design inputs will be identified, documented, and verified during the review process. Design changes from design reviews are governed by the same design control measures as those applied to the original design. Projects being performed under an approved PMP should process design changes in accordance with DOE Order 4700.1 and related site directives. Formal design reviews normally will be scheduled prior to approval of project design criteria and at a minimum of two times during CDR and Title II design. For small projects, one design review is at 100 percent completion is acceptable. Design schedules should allow time and resources necessary for reviews.

Formal design reviews verify that the design inputs were correctly selected, the assumptions used to complete the design are reasonable, the design outputs are reasonable, and necessary controls applicable to interfacing organizations were specified.

Under certain circumstances (i.e., if factors such as safety, environment, or critical plant operations are jeopardized), the EG&G ER project manager may request that a design modification package be issued concurrently for review and implementing action. Meeting a schedule is not sufficient justification for concurrent review and implementation. Any safety issues must be identified and resolved prior to implementation. After the concurrent release, the design review must still be conducted and comments responded to and incorporated as necessary.

SECTION 4
TITLE II AND TITLE III DESIGN

4.0 TITLE II AND TITLE III DESIGN

Title II or detailed design is analogous to the detailed design for Remedial Design/Remedial Action projects under CERCLA. Title III design is a support phase utilized by the design organization during construction.

The purpose of Title II design is to finalize the design in sufficient detail to complete construction, utilizing the Conceptual Design Criteria/Title I Design as revised by the CDR review as its basis for development.

The Title II design generally includes the following:

- Revision of the design due to the CDR review
- Development of final drawings and specifications for procurement and construction
- Quantification of labor, equipment, and materials required for a project
- Development of final construction cost estimate
- Final project schedules
- Analyses of health, safety, environmental, and other project aspects
- Identification of test plan and permit requirements and utility requirements
- Planning for Title III services
- Other work as required to meet the specific needs of a project.

A Title II Design Document is issued for review which normally includes the following components:

- A Title II design summary which states the purpose, scope, and description of the project
- Final technical specifications and drawings
- Design calculations
- Final construction cost estimates.

A Title II Design Review is required before the issuance of the final specifications and drawings for bidding, procurement, and construction.

Title III is utilized to verify and update the Title II definitive design, particularly with respect to the construction phase. For example, during construction, field conditions can affect a project's original design thus requiring additional modification. The main aspects to Title III include:

- Provisions for Field Change Orders (FCOs)
- Development of Quality Verification Plans
- Development and approval of As-Built Drawings.

The following sections briefly expand on both Title II and Title III. Further discussion on definitive design activities shall be presented in a working level procedure which is to be developed.

4.1 Preparation of Final Working Drawings and Specifications

The preparation of final working drawings and specifications is a strategic portion of the Title II design. Specifications complement the drawings and establish quality, define standards of workmanship for manufacture and installation, and describe cleaning, testing, or unusual requirements. Complete and accurate Technical Provisions should be provided for all construction contract work items. Specifications should include a description of required user and

maintenance training. Safe design of facilities and equipment shall apply to all projects and shall take priority over function, cost, and schedule.

Specifications and working drawings provide technical requirements for a contracting agreement between the Subcontract Administrator (SA) and a supplier or subcontractor. The Contract Technical Representative (CTR) defines the technical specifications from which a supplier or subcontractor is able to provide support. The SA and CTR together determine a supplier or subcontractor with adequate abilities to perform the designated work.

Construction Specifications include General Provisions and Supplement, Labor Standards Provisions, Wage Rate Decisions, Special Contract Requirements, Location and Area Plot Plan Maps, and Technical Provisions and Drawing List. Construction Specifications should be developed from the RFP Guide Specifications, when available. Specifications will be organized according to the Construction Specification Institute (CSI) format.

Equipment Specifications are written according to the format described in the RFP site guidance, and are to be reviewed and approved by the ER project manager, the appropriate Department Manager, and a Classifier. Equipment Specifications define the technical aspects of a procurement action for a major equipment item. Equipment Specifications should be reviewed to assure compliance with the project operational requirements and should include user and maintenance training.

Final working drawings and specifications should conform to appropriate codes and standards. Adherence to codes and standards assures consistency and thoroughness of design and engineering economy through the application of proven principles. If more than one code or standard is applicable to a job, the hierarchy for use shall be DOE Standard, RFP Standard, and Industry Standard.

Engineering drawings and sketches must be prepared in a professional manner according to RFP and DOE guidelines. Engineers and drafting technicians are responsible for the quality and completeness of all drawings they produce, and for following appropriate guidelines. Design checkers are responsible for checking technical accuracy and completeness and assuring substantial compliance with applicable codes and standards. Qualified engineers representing different design disciplines shall coordinate their drafting activities, and the design package shall be cross-checked by each design discipline to assure completeness and compatibility of the interfaces between disciplines.

New RFP facility drawings and revisions must be generated through the utilization of a Computer-Aided Design and Drafting (CADD) system. Certain exceptions to this requirement are allowed. If prepared by an A/E subcontractor, the drawings will be prepared on a CADD system according to RFP specifications and conventions. Outline Technical Provisions are to be provided for Title I and Title II Reviews. Review shall insure that a complete set of construction specifications is included. A Title II Design Review is required before issuance of the final specifications and drawings for bidding/procurement and construction.

4.2 Engineering Hold System

The term engineering hold applies to the need for additional information prior to approval of an applicable design document. Any member on the ER subproject support team may request that an engineering hold be placed on a design document by communicating such request to the originator of the document. The originator shall verify the need and rationale for placement or removal of the hold. All engineering holds must be accompanied with a timetable of need dates for the required information. No engineering hold will be issued without an established time frame to remove the hold. Removal of an engineering hold requires the issue of a revised document.

4.3 Preparation of Bidding/Procurement Documents

The culmination of the design process is a document which is sufficient for bidding and procurement of equipment or construction services. The final technical specifications are the core of this document. Procurement and bidding documents should be prepared with the objective of achieving a systematic and consistent process for purchasing equipment and construction services. The ER Estimation Handbook provides information on the methodology and account descriptions which may be utilized to break down the work.

The requirements for procurement are established during Title II design. Specifications and working drawings provide technical requirements for a contracting agreement between the SA and a supplier or contractor. Specifications complement the drawings and establish quality, define standards of workmanship for manufacture and installation, and describe cleaning, testing, or unusual requirements. Technical Specifications include General Requirements, which provide a project overview for bidders, Construction Specifications, and Equipment Specifications. Also, Title II design develops detailed estimates of the cost of construction or other activities, procurement and construction schedules, methods of performance, and identification of work packages.

The ER project manager and SA must prepare additional information, including the bidders list, invitation to bid, instructions to bidders, and bid forms. The design manager must also ensure that the Davis-Bacon Determination has been completed.

Once the bids are received, technical evaluations are performed and cost proposals are analyzed for the purpose of recommending to the SA the reasonableness of the labor hours, material quantities, tooling, facilities, and other direct costs. Technical evaluations should demonstrate the following: the proposal was given an adequate and objective evaluation; the evaluator understands what was proposed; whether requirements of the contract are satisfied; whether and how consultants and/or subcontractors are to be used; and whether the A/E manpower proposed to complete the work is reasonable. Conclusions should be presented in sufficient detail to support preparation of the negotiation objective and the ensuing negotiation. The technical evaluation may be tailored to the particular circumstances of the project and must stand on its own as a record of the findings of the evaluation.

4.4 Estimation of Quantities and Detailed Estimates

Title II design is the definitive design including working drawings, specifications for procurement, shop fabrication, and other construction work. The estimates for this project phase should include constructed cost of all facilities and equipment associated with a project, including ancillary facilities such as utilities. Title II design includes development of estimates of project constructed cost, including construction labor and equipment and material quantities. These estimates are refinements of CDR estimates. The Title II cost estimate is prepared near the end of the Title II design phase, requires close coordination between the design team and the estimator, and is presented in the Title II design document. Cost estimates are prepared in accordance with DOE Order 4700.1 and DOE Order 5700.2C.

Quantification of materials is the first step in development of the Title II cost estimate. Bulk materials may be quantified in one of three ways: (1) by estimate using historical data, (2) by takeoff quantities generated from engineering drawings, or (3) by calculation using the takeoff quantities generated for related materials. The latter two methods of quantification are preferable at the Title II design stage. The purpose of quantification is to provide basic information to purchase materials and to provide information to control and account for materials as the project progresses. This control is more

important for materials that are relatively expensive, of low usage, and have long lead times or an interruptible supply. For common and readily available materials, the cost of quantification may not be justified. For these materials, a min-max system may be appropriate where an established maximum quantity is acquired and re-ordered as used. The material requirements plan must specify which method of quantification is to be applied to the various types of bulk materials. The schedule of the downstream level of control, acquisition lead time, and the cost of shortages must be considered in addition to the factors of cost and accuracy.

The two most frequently used methods of preparing cost estimates are (1) Bottom-up Technique and (2) Specific Analogy Technique. Title II estimates are normally prepared in accordance with the "bottoms-up" estimating techniques.

For all cost estimates, a description of the basis for estimate must be made and included in the estimate documentation. For Title II estimates, this basis must include all the approved engineering data, methods of performance, final project definition and parameters, project schedule, and final exact detailed requirements.

Contingency is defined as the sum of funds included within an estimate to cover materials, labor, conditions and risk situations which are an intrinsic part of the presently intended scope of work, but are not specifically allowed for elsewhere in the estimate due to uncertainty either as to their existence, nature, likelihood of occurrence, or magnitude of effect. Contingency funds are considered part of the project's total estimated cost and are not "extra." Methods of determining the magnitude of contingency should consider the statistical probability that such funds will be spent. Contingency is meant to cover only the current scope of work and not additions to the scope of work. Contingency is derived from a risk analysis of various aspects of the project. A contingency analysis must be performed on all project cost estimates. In most cases, a short documented statement that details the development of the contingency allowance should accompany the estimate. Contingencies may be placed on individual project elements or the overall project as appropriate. To ensure that contingency is properly managed during execution of the project, a contingency plan should be developed which becomes an integral part of the PMP.

Where appropriate, a review of cost estimates prepared by subcontract A/E firms can be performed. A copy of the findings of a cost estimate review should be submitted to the A/E. A copy of any bid breakdowns or actual cost figures that are received on all construction contracts should be transmitted to the SA and CTR. This step is essential for verification of accuracy.

4.5 ES&H and Waste Management Requirements for Title III Support and Coordination of Environmental Permits

Effective environmental documentation, safety and health protection, and waste management programs must be planned and implemented during the phase of ER projects that involve field work, most often associated with Title III construction. Waste management planning and waste minimization must be an integral part of the project. NEPA documentation should normally be completed by this time. Work permits are required for many types of field activities. Hazardous and radiological determinations should be made and appropriate sampling conducted to protect worker health and safety and manage the wastes generated. Many wastes are not hazardous or radiological and can be disposed of using standard plant procedures. Some of these wastes may also be recycled or reused. Packing, shipping, and transport of waste material must also be planned and implemented according to several DOE and other federal agency requirements depending on the specific types of waste encountered.

Permits required prior to the initiation of remedial field activities should be initiated during the Conceptual/Title I and Title II design phases, preferably as soon as the need for the permit is identified and adequate support information is available to avoid delays in review cycles. These permits include site permits to perform work and to ensure ES&H protection, as well as state permits to install and operate environmental protection systems. A phased approach to permit issuance and compliance is recommended by DOE. In general, permit requirements should be described in the Title II design phase. Permits that were not developed during the Conceptual/Title I design phase are completed during the Title II design phase.

4.6 Development of Title II Design

The overall objectives of the Title II design are to:

- Achieve minimum project costs consistent with programmatic, environmental, security, and safety requirements
- Ensure technical adequacy
- Provide for optimum economy in operation and maintenance
- Assure that appropriate consideration is given to the project in relation to expected period of use, good engineering and construction practices, energy conservation, decontamination and decommissioning, QA requirements, and the appearance and ergonomics of completed projects.

Completion of the Title II design ends the design phase of a project and typically allows the beginning of the construction phase. The construction phase is concurrent with Title III design. The CDR is used as input to the Title II design phase. DOE Order 6430.1A presents the general design criteria to be used for the Title II design.

The Title II design must:

- Further develop the CDR
- Firmly fix costs and schedules prior to construction
- Ensure the following are completed or considered:
  - Any required restudy or redesign of CDR work
  - Development of final drawings and specifications for procurement and construction
  - Further development of estimates for construction, labor, equipment, and material quantities
  - Development of detailed cost of construction estimates, cost of procurement estimates, construction schedules, methods of performance, and identification of work packages
- Prepare analyses of health, safety, environmental and other project aspects
- Identify Quality Verification test plan and permit requirements
- Prepare procurement plan
- Determine utility service requirements
- Identify Job/Work Task Assessments
- Determine Training Plan.

The Title II design document is submitted for review and typically includes the following:

1. Title II design summary
2. Final technical specifications and drawings
3. Design calculations

4. Title II construction cost estimate

5. Title III planning information

The establishment of detailed schedules of the need for drawings and specifications aids the Title II design process. The concepts of systems engineering should also be considered throughout the Title II design process. A more detailed procedure is to be written to provide instruction on the development of definitive design.

4.7 Development of Requirements for Title III Services and Construction and Field Activities

Title III planning, procedure development, and reviews are performed as part of the Title II design in order to avoid delays in the project schedule. The Title III activities relate to the construction phase. The main aspects of the Title III design are provisions for FCOs, QVPs, and as-built drawings.

Construction/field activity estimates are required prior to the initiation of Title III Services, which are the activities required to assure that the project is constructed in accordance with its plans and specifications. This phase includes developing the bases for Title III estimates, reviewing the cost estimates, transmitting and getting approval of the cost estimates, and submitting the estimates as the basis for Title III Services.

Conceptual/Title I and Title II design estimates are used as the basis for projecting costs for field activities and Title III Services. Activities associated with estimates required to support Title III Services include:

- Prepare any of several types of cost estimates in accordance with RFP requirements and procedures and in a timely manner
- Participate in all pre-bid contractor walkthroughs
- Review Title II output information
- Evaluate costs of similar projects and maintain a computer cost database
- Identify flaws in the design package supplied for estimating
- Check the form and accuracy of all cost estimates prior to the transmittal for review/approval/implementation
- Review A/E cost estimates when required.

A request for estimate must be submitted to the EG&G cost estimating organization. A copy of the findings of a cost estimate review must be submitted to the appropriate A/E firm and available cost data must be submitted to the site cost estimating group. For further details, refer to the Configuration Management Plan.

The Title III plans and procedures are presented in the Title II Design Package for review. The Title II design information must also be prepared regarding construction management and planning including:

1. Procurement and construction schedules
2. Methods of performance and identification of work packages
3. Identification of test plan and permit requirements, preparation of procurement plan, and determination of utility service requirements in coordination with the operating contractor and/or the supplying utility companies
4. Planning for Title III Services
5. Other work as required to meet the specific needs of a project.

Detailed procurement and construction schedules

must be established. Test procedures must be developed for project or system components, subsystems, and systems. Further information on testing is covered in the ER Test and Evaluation Plan and ER Construction Management Plan.

4.8 Title II Design Reviews

The Title II Design Review is the final step in the design process and is performed before documents are issued for bidding and procurement. The ER project manager, along with the ER support team, is responsible for the planning, preparation, and coordination of CDR reviews. The review is typically performed by Technical Specialists from each design discipline involved in the project, as well as by other RFP organizations and specialists as required. The Design Review will ensure that:

- All significant factors affecting the system have been covered considering RFP practices and conditions
- The design and project cost have been optimized
- The project design criteria and applicable code requirements have been met.

Final Design Outputs are reviewed, as appropriate, for overall health, safety, and environmental concerns, fire protection, performance, operability, productivity, maintainability, reliability, energy conservation, overall value, cost and procurement evaluation, and QA evaluations. The EO is the release and transmittal document when used for design review distribution. The completed Title II Review Package is to be issued far enough in advance to allow reviewers sufficient review time. The review is initiated by distributing the CDR, using an EO, to the appropriate review organizations and individuals. Review should ensure that the following requirements are met:

- The project is consistent with the project as originally presented in the Functional Design Criteria
- All applicable programmatic DOE and RFP requirements are being adequately addressed
- The applicable design criteria are being followed in design
- Reasonable uniform standards of size, design, and materials of construction are being applied, and new construction is compatible with existing structures and facilities where required
- Project working cost estimates and schedule projections for performance are reasonable and within established baselines
- Safety and environmental impact assessments have been made, hazards and impact prevention measures are being applied, and compliance with environmental, health, and safety standards and guidelines are achieved.

Each reviewer should evaluate the following:

- Compliance with national and state codes, standards, and regulations as well as RFP Standards and practices
- Conformance with project design criteria
- Implementation of function, reasonable value, reliability, and current technology
- Consideration of energy conservation with realistic payoff period
- Availability and adequacy of necessary utilities
- Verification (spot checking) that appropriate calculations have been performed where required

- Assurance of quality control commensurate with designed QA levels

- Completeness of design package for intended use.

When deficiencies from these requirements are noted, they should be documented on the Design Comments/Resolution form and transmitted to the ER design manager. A Title II Design Review meeting may be required. All comments from the reviewers, including DOE, must be either incorporated into the design or resolved with the reviewer. Incorporation of review comments on the project design should be reflected in the final design specifications and drawings as "Issued for Construction."

APPENDIX A
BIBLIOGRAPHY

APPENDIX B
ACRONYMS AND ABBREVIATIONS

AAAP	Advance Acquisition or Assistance Plan
ACR	Administrative Control Requirements
ADS	Activity Data Sheets
A/E	Architect/Engineering
ATP	Acceptance Test Procedure
BAT	Best Available Technology
CADD	Computer Aided Design and Drafting
CCCP	Configuration Change Control Program
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFC	Certified for Construction
CCP	Construction Change Proposal
CDR	Conceptual Design Report
CM	Construction Management
CMT	Configuration Management
CMO	Construction Management Office
CO	Contracting Officer
COEM	Conduct of Engineering Manual
CPAF	Cost Plus Award Fee
CPIF	Cost Plus Incentive Fee
CSI	Contracting Specification Institute
CTR	Contract Technical Representative
CWBS	Contract Work Breakdown Structure
DCP	Design Criteria Package
D&D	Decontamination and Decommissioning
DE	Design Engineering
DMP	Design Management Plan
DMR	Design Management Requirement
DOE	Department of Energy
EA	Environmental Assessment
EEC	Environmental Evaluation Checklists
EE&T	Environmental Engineering & Technology
ERD	Environmental Resource Division
ERM	Environmental Restoration Management
ERDGM	Environmental Restoration Engineering Design Guidance Manual
EO	Environmental Operations
ER	Environmental Restoration
ERP	Environmental Restoration Program
EIS	Environmental Impact Statement
ES	Engineering Study
ES&H	Environmental Safety and Health
ESR	Engineering Support Request
FCO	Field Change Order
FDC	Functional Design Criteria
FI	Facilities Inspection
FP	Fixed Price
FS	Feasibility Study
HFE	Human Factors Engineering
IAG	Interagency Agreement
IM/IRA	Interim Measure/Interim Remedial Action
IPP	Implementation Procedures and Plans
IWCP	Integrated Work Control Program
MP	Major Projects
MPR	Management Procedure Requirement
MSA	Major System Acquisition
M&O	Maintenance & Operating
M&TE	Measuring and Test Equipment
MTS	Master Task Subcontract
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NSC	Non-Safety Class
OTP	Operational Test Procedure
ORD	Operational Requirement Document
PCS	Project Control System
PE	project engineer
PIP	Project Implementation Plan
PMP	Project Management Plan
PMT	Post Maintenance Test
PP	Project Plan
PSWBS	Project Summary Work Breakdown Structure
QA	Quality Assurance
QACC	Quality Assurance Criteria Checklist

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QAPD	Quality Assurance Program Description
RA	Remedial Action
RAM	Reliability, Availability, and Maintainability
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RFO	Rocky Flats Office
RFP	Rocky Flats Plant
RI	Remedial Investigation
ROD	Record of Decision
SA	Subcontract Administrator
SC	Safety Class
SEMP	System Engineering Management Plan
SME	Subject Matter Expert
SO	System Operational
SOW	Statement of Work
TEC	Total Estimated Cost
TECC	Total Estimated Construction Costs
TEP	Test and Evaluation Plan
TPC	Total Project Costs
TSD	Treatment, Storage and Disposal
TSR	Technical Safety Requirements
TTRB	Technical Testing Review Board
UCNI	Unclassified Controlled Nuclear Information
VE	Value Engineering
WAD	Work Authorization Document
WBS	Work Breakdown Structure
WP	Work Package

Procedure Information Questionnaire

Input

EQS Information

Document Title: Design Management Plan Document Number: RFP/ER-MP-93-006 Rev. 0

Rev. Date: _____ Draft A DMR # 93-DMR-0029 Manual Number _____

Document Category
- ___ Administrative
- ✓ Oper / Technical
- ___ Work Plan
- ___ Other _____

ofDCNs _____

Status
- ___ Active
- ✓ Inactive - Not in use
- ___ On hold - Stagnant
- ___ Pending Action
- ___ On Schedule
- ___ Behind Schedule
- ___ Deleted
- ___ Other _____

Priority # ___

ORC Review: not required Tech. Writer _____ EQS Reviewer _____

Draft/Revision, Parallel/Concurrence, DMR Change

_____

Responsible Manager Questions

Resp. Org. ESTE SME Tom Lindsay SME Phone # 6985

Compulsory Rev. _____ EPA/CDH/DOE Approval N/A (Date) Approved Rev. _____

Funded ✓ Yes ___ No Charge # 9893160C Work Pkg. Mgr. B. Pett

Driver(s): Required to satisfy requirements as an MSA

Completion Due Date: ~~ASAP~~ 5/20/94

DATA ENTRY INFORMATION

Log #	Date Received by EQS	Date Entered Into System

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94-00144

Distribution List

Rec'd Date: 5/9/94

PPG Due Date: NA

EQS Due Date: 5/18/94

Procedure Number: 93-006

Title: Rocky Flats Plant Design Management Plan for ERM

Rev. 0 Draft A

DMR # 93-DMR-0029

Review / Concurrence: Review

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✓ G. M. Anderson - EE&T
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ORC REVIEW DETERMINATION

Form 05.07C
Rev. 0

DOCUMENT NUMBER: RFP/ER-MP-93-006 REV: 0
DOCUMENT TITLE: Design Management Implementation Plan

DOCUMENT MODIFICATION TYPE: ☒ New ☐ Revision ☐ Intent Change

This form is used to document the ORC review identified in procedure 1-52000-ADM-02.01, Operations Review Committee. Documents, including revision or intent changes, which affect safety systems for facilities listed in Appendix 2 of 1-52000-ADM-02.01, Operations Review Committee Requirements, or for which the answer to any the following questions is yes, should be identified for ORC review. The form in Appendix 3 of procedure 1-52000-ADM-02.01 may be used in place of this form.

Procedure changes determined to not involve a "change of intent" do not require ORC review.

For purposes of ORC review, "procedure" is defined in Section 3.10 of 1-52000-ADM-02.01. (For ERM, the term procedure would normally include all work controlling documents.) Check YES or NO.

ORC Review Evaluation	YES	NO
Does the document specify key administrative controls potentially affecting the safety envelope of nuclear facilities for one of the programs listed below (based on the criteria in Appendixes 1, 2, and 3 of 1-52000-ADM-02.01)? Procedure Program Environmental Restoration Program Quality Assurance Program Onsite and Offsite Transportation Program (Other programs listed in Appendix 3 of 1-52000-ADM-02.01 not typically affected by ERM)	☐	☒
2. Does this document affect or provide instruction for energizing, filling, venting, draining, starting up, shutting down, changing modes of operation, or other conditions directly affecting operations of systems listed in Appendix 2 of 1-52000-ADM-02.01? (This consideration is normally only relevant for OU-15).	☐	☒
3. Does this document affect process monitoring of emergency equipment, vital safety systems, or systems, equipment, structures, or components that serve as barriers relied upon to limit release of radioactive materials (Appendix 2 of 1-52000-ADM-02.01)? (This consideration is normally only relevant for OU-15).	☐	☒
4. Does this document affect systems, components, structures, or activities that could prevent performance of safety functions of systems for facilities listed in Appendix 2 of 1-52000-ADM-02.01? (This consideration is normally only relevant for OU-15).	☐	☒

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ORC REVIEW DETERMINATION

DOCUMENT NUMBER: _____ REV: _____

DOCUMENT TITLE: _____

_____

ORC Review Evaluation	YES	NO
5. Does this document implement or support a surveillance requirement, including vital safety system calibrations for an OSR, TSR, or systems of facilities listed in Appendix 2 of 1-52000-ADM-02.01? (This consideration is normally only relevant for OU-15).	☐	☒
6. Does this document establish compensatory or remedial actions needed to satisfy the requirements of a facility Safety Analysis Report, or to compensate for deficiencies of systems listed in Appendix 2 of 1-52000-ADM-02.01? (This consideration is normally only relevant for OU-15).	☐	☒
7. Does this procedure provide instructions that define emergency actions, or define activation of control of the Emergency Center? (This consideration is normally only relevant for OU-15.)	☐	☒
8. Does this document involve, define, or control criticality safety parameters or analyses? (This consideration is normally only relevant for OU-15).	☐	☒
9. Does the document provide instructions for handling, storage, inspections, inventory, processing, shipping, or onsite transportation of radiologically hazardous, contaminated, or fissile materials that could result in worker or public exposure above acceptable levels per established Rocky Flats programs or limits?	☐	☒
10. Does this document provide for periodic or repetitive type maintenance or testing on the systems or items of facilities listed in Appendix 2 of 1-52000-ADM-02.01? (This consideration is normally only relevant for OU-15).	☐	☒
11. Does this document specify requirements for controlling or preventing radiation exposure, criticality safety violations, vital safety system degradation, or OSR violations (see nuclear safety issue definition 3.5 and Appendix 1 of 1-52000-ADM-02.01)?	☐	☒

ORC Review Required ☐ YES ☒ NO

RESPONSIBLE MANAGER:

Signature: Bruce Pett Print Name: Bruce Pett Date: 5-6-94

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DOCUMENT MODIFICATION REQUEST (DMR)

Refer to 1-A01-PPG-001 for Processing Instructions.
Print or Type All Information (Except Signatures)

1. Date	25.
12-8-93	DMR. No. 93-DMR-0029 SERD

2. Existing Document Number/Revision	3. New Document Number or Document Number if it is to be changed with this Revision
N A	~~(N/A)~~ SERD 12-10-93 RFP/ER-MP-93-006

4. Originator's Name/Phone/Page/Location	5. Document Title
G.M. Anderson 8505/4134/080	Design Management Plan

6. Document Type	7. Document Modification Type (Check only one)
☐ Procedure ☒ Other Plan	☒ New ☐ Revision ☐ Intent Change ☐ Nonintent Change ☐ Editorial Correction ☐ Cancellation

8. Item	9. Page	10. Step	11. Proposed Modifications
NA	NA	NA	New Document

12. Justification (Reason for Modification, EJO#, TP#, etc.)

Management Plan Required

If modification is for a new procedure or a revision, list concurring disciplines in Block 13, and enter N/A in Blocks 14 and 15. If modification is for any type of change or a cancellation, organizations are listed in Block 13, then Concurror prints, and signs in Block 14, and dates in Block 15.

13. Organization	14. Print and Sign (if applicable)	15. Date (if applicable)
P I+R	NA	NA
IRAS		
D+D		
RPM		
Est E		
SPP		
EOM		
Sample Mgt		
PI+R		

16. Originator's Supervisor (print/sign/date)					
Gary M Anderson	Gary M Anderson 8 DEC 93				
17. Assigned SME/Phone/Page/Location		**18. Cost Center**	**19. Charge Number**	**20. Requested Completion Date**	**21. Effective Date**
T.M. Lindsay 6985/7478/080		3034	989316-00	4/30/94	
22. Accelerated Review? Yes ☐ No ☒	**23. ORC Review** ~~N/A~~ 12/9/93 ORC Review NOT Required				
24. Responsible Manager (print, sign, date) Gary M Anderson	Gary M. Anderson 8 Dec 93				

REVIEWED FOR CLASSIFICATION/UCNI
BY NA
DATE NA

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L. Oates' comments on Design Management Plan for ERM

Procedure #93-006 Rev. 0, Draft A - Rocky Flats Design Management Plan for ERM				
Internal Review				
TYPE G or M	PAGE	SECTION or LINE #	COMMENT	DISPOS
	1	1.3	DOE Order 5440.1E (NEPA Compliance Program) has essentially been superseded by 10 CFR 1021, DOE's NEPA regulations	
	2	1.4	The reference at the end of the paragraph to Table 1-2 should refer to table 1-1.	
	3		Figure 1-1 does not present any decipherable logic to establish a relationship among the plans and procedures identified. The author's intent in presenting this information is not clear.	

	4-7		Table 1-1 suggests that there are numerous aspects of the design management process that are not addressed in other documents; for example, in section 2.0, Project Organization, there are no X marks in the columns for most of the subheadings. This suggests that either there are not implementation plans or procedures for these activities, or the table is incomplete. Because the majority of the items identified in the matrix have no corresponding X, I question the value of including the table in this document.	
	10/ 11		Several of the organizations identified across the top of Table 2-1 have no identified responsibilities (e.g., DOE-CMO, vendors, construction sub). These groups should not be included in the table, if they have no activity.	
	Fig- ure 2-1		I assume that block 1.4.7.1.1.xx.1 is intended to indicate the interim remedial action process. This process should be linked with the final RI/FS for each site where it is applied, as it must be consistent with and contribute to the final site ROD.	
	13	2.1.3	The first sentence in the first full paragraph should read "are an integral part of the ER subproject," not an "intricate part."	

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	13	2.1.4	The interface control plan should be a part of the project management plan; I see no value in setting up a separate document process.	
	15	2.2	The five primary processes within ER are presented as largely independent activities. These processes should be more closely aligned and integrated than is suggested in Figure 2-2. NEPA compliance should be functionally equivalent to the CERCLA process and does not need to run down a separate track.	

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REVIEW COMMENT SHEET

Time Spent on Review: _____ hrs.

94-00144

Return to:

8575	K. O. Taylor	6909	080
FAX	Name	Ext.	Location

If questions on content, please call the SME:

Tom Lindsay	6985
Name	Ext.

Page ____ of ____

Please review the attached procedure:

93-006	0	A	Rocky Flats Plant Design Management Plan for ERM
Number	Rev.	Draft	Title

Comment Due Date: 5/18/94

DMR # 93-DMR-0029

[X] Internal Review [ ] Parallel Review [ ] Verification [ ] Validation [ ] Revalidation

General (G) comments require resolution but do not require resolution acceptance. Mandatory (M) comments require resolution and resolution acceptance. 1-A03-PPG-004 provides complete definitions of General and Mandatory comments.

TYPE G or M	PAGE	SECTION OR LINE #	COMMENT	DISPOSITION	Disposition Accepted INIT/DATE
			Black ink only, please		
M	4-7	1	Table 1-1 should be re-evaluated to address QA interfaces & controls. Many of the design activities listed should have QA interfaces identified. Same comment applies to interfaces with the Admin. Controls Plan which addresses document control & Records mgmt requirements.		
M	N/A	N/A	Document needs a section on records management. The majority of engineering design records are QA records which require special protection & handling. All records should be transmitted to the ER Project File Center. The ER Doc. Control Center is establishing a procedure for interfaces w/ Eng. on drawings - need to reference it.		

POC/Reviewer: (Comments not signed by POC/Reviewer will be considered unofficial and not subject to resolution)

[ ] No Comments

[ ] This procedure revision has no impact or relevance to our discipline or organization and we waive need to concur

Kaye Bentzen	K. Stiger
Name	Signature

8753	080/ EQS /Stiger	5/13/94
Ext./Pager/Fax	Bldg./Dept./AGM	Date

Resolutions Accepted

Initials _____ Date _____

Note: These reviews are completed by qualified reviewers in accordance with 1-A03-PPG-004 in concert with 1-A01-PPG-001 and 1-A02-PPG-003

RF-47947 (5/93)

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REVIEW COMMENT SHEET

Time Spent on Review: _____ hrs.

94-00144

Return to:

8575	K. O. Taylor	6909	080
FAX	Name	Ext.	Location

If questions on content, please call the SME:

Tom Lindsay	6985
Name	Ext.

Page ____ of ____

Please review the attached procedure:

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Number	Rev.	Draft	Title

Comment Due Date: 5/18/94

DMR # 93-DMR-0029

[X] Internal Review [ ] Parallel Review [ ] Verification [ ] Validation [ ] Revalidation

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TYPE G or M	PAGE	SECTION OR LINE #	COMMENT	DISPOSITION	Disposition Accepted INIT/DATE
			Black ink only, please		

POC/Reviewer: (Comments not signed by POC/Reviewer will be considered unofficial and not subject to resolution)

[X] No Comments

[ ] This procedure revision has no impact or relevance to our discipline or organization and we waive need to concur

Carol Bicher — Name

[signature] — Signature

9100/4037 — Ext/Pager/Fax

080/ Geosciences /Stiger — Bldg./Dept./AGM

5-11-94 — Date

Resolutions Accepted

Initials _____ Date _____

63

Note: These reviews are completed by qualified reviewers in accourdance with 1-A03-PPG-004 in concert with 1-A01-PPG-001 and 1-A02-PPG-003

RF-47947 (5/93)

REVIEW COMMENT SHEET

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94-00144

Return to:

8575	K. O. Taylor	6909	080
FAX	Name	Ext.	Location

If questions on content, please call the SME:

Tom Lindsay	6985
Name	Ext.

Page ____ of ____

Please review the attached procedure:

93-006	0	A	Rocky Flats Plant Design Management Plan for ERM
Number	Rev.	Draft	Title

Comment Due Date: 5/18/94

DMR # 93-DMR-0029

[X] Internal Review [ ] Parallel Review [ ] Verification [ ] Validation [ ] Revalidation

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TYPE G or M	PAGE	SECTION OR LINE #	COMMENT	DISPOSITION	Disposition Accepted INIT/DATE
			Black ink only, please		
M	6,7		should not Public Outreach Plan be referenced, as some Conceptual Designs (i.e. IM/IRA Plans) require a public comment period		
M	10,11		EG+G Departments are not fully defined anywhere. What is, for instance "EG&G-EEM-R&R" Community relations again is nowhere.		
G			Public Comment Period for some Conceptual designs are required. No where in ~~the~~ document is this addressed. this needs to be added in the appropriate places, as this can greatly affect schedule; cost		

POC/Reviewer: (Comments not signed by POC/Reviewer will be considered unofficial and not subject to resolution)

[ ] No Comments

[ ] This procedure revision has no impact or relevance to our discipline or organization and we waive need to concur

J. P. Koffer — Name

J P Koffer — Signature

6554/8773/8774 — Ext/Pager/Fax

080/ PIR /Stiger — Bldg./Dept/AGM

5/18/94 — Date

Resolutions Accepted

Initials _____ Date _____

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Note: These reviews are completed by qualified reviewers in accordance with 1-A03-PPG-004 in concert with 1-A01-PPG-001 and 1-A02-PPG-003

RF-47947 (5/93)

REVIEW COMMENT SHEET

Time Spent on Review: 2 hrs.

94-00144

Return to:

8575	K. O. Taylor	6909	080
FAX	Name	Ext.	Location

If questions on content, please call the SME:

Tom Lindsay	6985
Name	Ext.

Please review the attached procedure: 93-006 (Number) 0 (Rev.) A (Draft) Rocky Flats Plant Design Management Plan for ERM (Title)

Comment Due Date: 5/18/94 DMR # 93-DMR-0029

[X] Internal Review [ ] Parallel Review [ ] Verification [ ] Validation [ ] Revalidation

General (G) comments require resolution but do not require resolution acceptance. Mandatory (M) comments require resolution and resolution acceptance.
1-A03-PPG-004 provides complete definitions of General and Mandatory comments.

TYPE G or M	PAGE	SECTION OR LINE #	COMMENT	DISPOSITION	Disposition Accepted INIT/DATE
G.	9	2.1.1	Black ink only, please OVERSITE – SHOULD BE "OVERSIGHT"		
		2.1.2	3RD PARAGRAPH – SENTENCE SHOULD READ... IN ORDER FOR THE ER SUB. PROJECT TO MEET ITS TECHNICAL SCOPE, COST, AND SCHEDULE COMMITMENTS. (IE., ADD THE TERM "SCOPE" FOR INTENDED MEANING. THE ADJECTIVE "TECHNICAL" IS NOT SUFFICIENT.		
		2.1.3	DELETE TERM/REFERENCE TO "M&O" THIS IS UNDERSTOOD THAT EG&G IS THE M&O CONTRACTOR.		

POC/Reviewer: (Comments not signed by POC/Reviewer will be considered unofficial and not subject to resolution) X 8599

[ ] No Comments

[ ] This procedure revision has no impact or relevance to our discipline or organization and we waive need to concur

for S.R. Keith

Name Signature

080/ /Stiger

Ext/Pager/Fax Bldg./Dept/AGM Date

Resolutions Accepted

Initials Date

65

Note: These reviews are completed by qualified reviewers in accordance with 1-A03-PPG-004 in concert with 1-A01-PPG-001 and 1-A02-PPG-003

94-00144

REVIEW COMMENT SHEET (continued)

Review comments for document: 93-006 (Number) 0 (Rev.) A (Draft)

TYPE G or M	PAGE	SECTION OR LINE #	COMMENT	DISPOSITION	Disposition Accepted INIT/DATE
G.	13	3RD ¶	DELETE REFERENCE TO "THE M&O ORGANIZATION" (IE., NO VALUE ADDED).		
		2.1.4	2ND ¶ → CHANGE "CONSTRUCT" TO "CONSTRUCTION" FOR PROPER WORDING		
G.	14	2.1.4	DEFINE PARTICIPATING ORGANIZATIONS AND THEIR RESPONSIBILITIES: THIS IS REFERRED TO BY THE TERMS OBS - ORGANIZATIONAL BREAKDOWN STRUCTURE RAM - RESPONSIBILITY ASSIGNMENT MATRIX		
		2.2	1ST ¶. "THE WBS STRUCTURE"... IS REDUNDANT (IE., THE WORK BREAKDOWN STRUCTURE STRUCTURE ???).		
~~NC~~ G	15	2.3	IS THE TERM "GRADED APPROACH" CLEARLY UNDERSTOOD ? IT IS USED THROUGHOUT THE DOCUMENT & IS NOT ADEQUATELY DEFINED.	—	

POC/Reviewer: (Comments not signed by POC/Reviewer will be considered unofficial and not subject to resolution)

MICHAEL O'Rell (Name) Michael O'Rell (Signature) 5/17/94 (Date)

Resolutions Accepted

(Initials) (Date)

66

REVIEW COMMENT SHEET (continued)

Review comments for document: 93-006 (Number) 0 (Rev.) A (Draft)

TYPE G or M	PAGE	SECTION OR LINE #	COMMENT	DISPOSITION	Disposition Accepted INIT/DATE
G.	28	3.6	WHAT IS "SPECIFIC ANALOGY" TYPE OF ESTIMATING TECHNIQUE? I'VE NEVER HEARD OF THIS TERM AFTER SIX YEARS IN COST ESTIMATING. IS THIS THE SAME AS "HISTORICAL COST"		
G.	29	3.7	DAVIS-BACON DETERMINATIONS. PROCEDURE DOESN'T INDICATE WHAT TO DO ONCE THE DB DETERMINATION IS PREPARED. SUBMIT TO WHOM???		
G.	31	3.8	2ND TP. "DOE ORDER 4700.1 REQUIRES THE CONDUCT . . ." CONDUCT SEEMS TO BE A POOR CHOICE OF WORDING SINCE THE SECOND BULLET BELOW USES THE TERM CONDUCT.		

POC/Reviewer: (Comments not signed by POC/Reviewer will be considered unofficial and not subject to resolution)

M. D. O'Kelly (Name) — Michael O'Kelly (Signature) — 5/17/94 (Date)

Resolutions Accepted — Initials — Date

67

94-00144

REVIEW COMMENT SHEET (continued)

Review comments for document: 93-008 (Number) 0 (Rev.) A (Draft)

TYPE G or M	PAGE	SECTION OR LINE #	COMMENT	DISPOSITION	Disposition Accepted INIT/DATE
G	~~36~~ 34	4.1	"THE PREPARATION OF FINAL WORKING DRAWINGS & SPECS IS A STRATEGIC PORTION OF THE TITLE ~~II~~ DESIGN." "STRATEGIC PORTION" SEEMS AWKWARD. PERHAPS ~~"~~ USE "THE ESSENTIAL PART OF" OR SOMETHING MORE APPROPRIATE. ALSO, "COMPLETE & ACCURATE TECHNICAL PROVISIONS..." IN LIEU OF COMPLETE, THE WORD COMPREHENSIVE MAY BE MORE APPROPRIATE.		
G	36	4.3	"THE FINAL TECHNICAL SPECIFICATIONS..." ADD: & DRAWINGS ARE THE CORE OF THIS DOCUMENT.		
G	45	N/A	MANAGEMENT & OPERATING — NOT MAINTENANCE & OPERATING		

POC/Reviewer: (Comments not signed by POC/Reviewer will be considered unofficial and not subject to resolution)

M. D. O'Kelly (Name) — Signature — 5/11/94 (Date)

Resolutions Accepted

Initials — Date

68

REVIEW COMMENT SHEET

Time Spent on Review: _____ hrs.

94-00144

Return to:

8575	K. O. Taylor	6909	080
FAX	Name	Ext.	Location

If questions on content, please call the SME:

Tom Lindsay	6985
Name	Ext.

Page____ of____

Please review the attached procedure:

93-006	0	A	Rocky Flats Plant Design Management Plan for ERM
Number	Rev.	Draft	Title

Comment Due Date: 5/18/94 DMR # 93-DMR-0029

[X] Internal Review [ ] Parallel Review [ ] Verification [ ] Validation [ ] Revalidation

General (G) comments require resolution but do not require resolution acceptance. Mandatory (M) comments require resolution and resolution acceptance. 1-A03-PPG-004 provides complete definitions of General and Mandatory comments.

TYPE G or M	PAGE	SECTION OR LINE #	COMMENT	DISPOSITION	Disposition Accepted INIT/DATE
M		Overall	Black ink only, please I don't understand why we are doing a document this large for this topic. If this is required at all - it should reference the documents already in place or plans that guide these areas already - Also there is alot of repeat information here on WBS and overall § 4700.1 info. Does it have to be repeated in each plan?		

POC/Reviewer: (Comments not signed by POC/Reviewer will be considered unofficial and not subject to resolution)

[ ] No Comments

[ ] This procedure revision has no impact or relevance to our discipline or organization and we waive need to concur

W S Busby	W S Busby		
Name	Signature		
8522/5129/8556	080/ RPM /Stiger	5/19/94	
Ext/Pager/Fax	Bldg./Dept./AGM	Date	

Resolutions Accepted

_____ _____

Initials Date

Note: These reviews are completed by qualified reviewers in accourdance with 1-A03-PPG-004 in concert with 1-A01-PPG-001 and 1-A02-PPG-003

RF-47947 (5/93)

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DMR #:

REVIEW COMMENT SHEET

Time Spent on Review: _____ hrs.

Return to:

8575	K. O. Taylor	6909	080
FAX	Name	Ext.	Location

If questions on content, please call the SME:

Tom Lindsay	6985
Name	Ext.

Please review the attached procedure: 93-006 (Number) 0 (Rev.) A (Draft) ERM Design Management Plan (Title)

DMR # 93-DMR-0029

Comment Due Date: _____

☒ Internal Review ☐ Parallel Review (2nd Review) ☐ Verification ☐ Validation ☐ Revalidation

General (G) comments require resolution but do not require resolution acceptance. Mandatory (M) comments require resolution and resolution acceptance.
1-A03-PPG-004 provides complete definitions of General and Mandatory comments.

TYPE G or M	PAGE	SECTION OR LINE #	COMMENT	DISPOSITION	Disposition Accepted INIT/DATE
G	01	1.2	1st Paragraph, 1st Sentence and others... The intent of this plan *will be...* tense! This is not a proposal for the document, it IS the document! 2nd Paragraph, 1st Sentence shall be... etc. 2nd Paragraph, 2nd Sentence The graded approach *should be* controlled by... is it or isn't it? 2nd Paragraph, 4th & 5th Sentences It is not clear if the author has performed the review or if the author is requiring the reader to perform the review.		
M	02	1.4	Last Sentence Table on pages 4-7 is labeled 1.1		
M	09	2.1.2	Space missing between header and paragraph 2.1.1		
G	13	2.1.3	1st Paragraph, Last Sentence I don't think that ER wants to say that participants from supporting organizations must be *committed* to an ER Subproject until their obligations are completed.		

POC/Reviewer: (Comments not signed by POC/Reviewer will be considered unofficial and not subject to resolution)

☐ No Comments

☐ This procedure revision has no impact or relevance to our discipline or organization and we waive need to concur.

A. J. Torrisi		
Name	Signature	
6925/3135/8768	080/Solar Pond Projects/Stiger	05.19/94
Ext./Pager/Fax	Bldg./Dept./AGM	Date

Resolutions Accepted

Initials _____ Date _____

70

NOTE: These reviews are completed by qualified reviewers in accordance with 1-A03-PPG-004 in concert with 1-A01-PPG-001 and 1-A02-PPG-003.

REVIEW COMMENT SHEET (continued)

Review comments for document: 93-006 (Number) 0 (Rev.) A (Draft)

TYPE G or M	PAGE	SECTION OR LINE #	COMMENT	DISPOSITION	Disposition Accepted INIT/DATE
M	13	2.1.3	2nd Paragraph, Last Sentence Who is a "PE manager from the design organization" and who is the design organization?? This sentence is not clear, please rewrite. Perhaps it would be clearer if it was moved to the end of the third paragraph.		
M	13	2.1.3	4th Paragraph, 3rd bullet We need to tell someone in writing that it is their responsibility to "utilize good judgment ..." Does this mean that if it wasn't in writing it would be o.k. to utilize bad judgment??		
G	13	2.1.3	5th Paragraph, 2nd Sentence Talk about stating the obvious!! 5th Paragraph, 4th Sentence Sentence, as written, is awkward. Please rewrite.		
M	13	2.1.4	1st Paragraph, 2nd Sentence Change from "interface control approach" to "interface control plan" or "interface control approach plan" 1st Paragraph, 3rd Sentence A graded approach does not provide an adaptable working environment. A particular working environment is allowed because of the use of a graded approach. 2nd Paragraph 1st sentence awkward and unclear. 2nd sentence: "appoint a designee" translates to appoint an appointed person - please revise these two sentences.		

POC/Reviewer: (Comments not signed by the POC/Reviewer will be considered as unofficial comments)

A. J. Torrisi (Name) — (Signature) — 05/19/94 (Date)

Resolutions Accepted

(Initials) — (Date)

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REVIEW COMMENT SHEET (continued)

Review comments for document: 93-006 (Number) | 0 (Rev.) | A (Draft)

TYPE G or M	PAGE	SECTION OR LINE #	COMMENT	DISPOSITION	Disposition Accepted INIT/DATE
G	14	2.1.4	3rd Paragraph, 1st Sentence Sentence awkward. How about: Interface control planning shall include, when applicable and as a minimum, the following: Note that the gramatical structure of some of the "bullets" is not compatable with the introductory sentence, e.g., the first bullet should read, "A definition of participating..., the second should read, "An identification of the affected plant systems and required equipment, etc.		
G	14	2.2	1st Paragraph, 2nd Sentence WBS not defined 2nd Paragraph, 1st Sentence Sentence, as written, is awkward. Please rewrite.		

POC/Reviewer: (Comments not signed by the POC/Reviewer will be considered as unofficial comments)

A. J. Torrisi (Name) | [signature] (Signature) | 05/19/94 (Date)

Resolutions Accepted

(Initials) | (Date)

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REVIEW COMMENT SHEET

Time Spent on Review: 1 hrs.

94-00144

Return to:

8575	K. O. Taylor	6909	080
FAX	Name	Ext.	Location

If questions on content, please call the SME:

Tom Lindsay	6985
Name	Ext.

Please review the attached procedure: 93-006 (Number) 0 (Rev.) A (Draft) Rocky Flats Plant Design Management Plan for ERM (Title)

Comment Due Date: 5/18/94 DMR # 93-DMR-0029

[X] Internal Review [ ] Parallel Review [ ] Verification [ ] Validation [ ] Revalidation

General (G) comments require resolution but do not require resolution acceptance. Mandatory (M) comments require resolution and resolution acceptance. 1-A03-PPG-004 provides complete definitions of General and Mandatory comments.

Black ink only, please

TYPE G or M	PAGE	SECTION OR LINE #	COMMENT	DISPOSITION	Disposition Accepted INIT/DATE
G	1	1.2	For emphasis, maybe add to end of § something like: In general, the implementation described in this plan is to be preferred over the IWCP, COEM, and CCCP, since this plan is developed specifically for the ER MSA.		
G	1	1.2	What about COOP (in last ¶)? Does it need to be included?		
G	3	Fig 1.1	5481.1B applies to non-nuclear facilities & will apply in lieu of 5480.23 for many (most?) ER projects		

POC/Reviewer: (Comments not signed by POC/Reviewer will be considered unofficial and not subject to resolution)

[ ] No Comments

[ ] This procedure revision has no impact or relevance to our discipline or organization and we waive need to concur

KC LONDON for SRKeith (Name) K London (Signature)

8585/3814/8768 (Ext/Pager/Fax) 080/ SPP /Stiger (Bldg./Dept/AGM) 5/17/94 (Date)

Resolutions Accepted

Initials ____ Date ____

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Note: These reviews are completed by qualified reviewers in accordance with 1-A03-PPG-004 in concert with 1-A01-PPG-001 and 1-A02-PPG-003

RF-47947 (5/93)

REVIEW COMMENT SHEET (continued)

Review comments for document: 93-006 (Number) 0 (Rev.) A (Draft)

TYPE G or M	PAGE	SECTION OR LINE #	COMMENT	DISPOSITION	Disposition Accepted INIT/DATE
G	10	Table 2-1	Pg 12 missing from my copy—are the "Activity Codes" on Table 2-1 supposed to match WBS #s? They look so much like section #s, it is confusing at first glance. Could you add a document § or page # to the Abbreviated Activity Descrip to aid reader in finding a § of interest.		
G	15	2.2	Just to further confuse the RCRA CERCLA mix, the IAG is incorporated into the plant's RCRA permit, so the whole thing is RCRA corrective action. Is that worth noting?		

POC/Reviewer: (Comments not signed by POC/Reviewer will be considered unofficial and not subject to resolution)

KC London (Name) K London (Signature) 5/17/94 (Date)

Resolutions Accepted

(Initials) (Date)

74

REVIEW COMMENT SHEET (continued)

Review comments for document: 93-006 (Number) 0 (Rev.) A (Draft)

TYPE G or M	PAGE	SECTION OR LINE #	COMMENT	DISPOSITION	Disposition Accepted INIT/DATE
M	9	2.1.2	2nd ¶, Do not leave the impression the WBS shown is mandatory Add "typical" or "sample" to the Fig 2-1 WBS (found it, by the way!)		
M	20	2.12	Include 5481.1B, which is for non-nuclear facilities & will apply to most of the ERMSA		
G	24	3.1.1	Why is the Title II Review in § 3.1.1? Maybe it is misplaced, or add a sentence saying why it is here.		
G	27	3.3	FYI, DOE is about to modify its NEPA process for some CERCLA projects (source: Steve Vesta) but I think at this level of detail, the plan is OK		

POC/Reviewer: (Comments not signed by POC/Reviewer will be considered unofficial and not subject to resolution)

KC London (Name) K London (Signature) 5/17/94 (Date)

Resolutions Accepted

(Initials) (Date)

75

REVIEW COMMENT SHEET

Time Spent on Review: _____ hrs.

94-00144

Return to:

8575	K. O. Taylor	6909	080
FAX	Name	Ext.	Location

If questions on content, please call the SME:

Tom Lindsay	6985
Name	Ext.

Page____ of____

Please review the attached procedure:

93-006	0	A	Rocky Flats Plant Design Management Plan for ERM
Number	Rev.	Draft	Title

Comment Due Date: 5/18/94

DMR # 93-DMR-0029

[X] Internal Review [ ] Parallel Review [ ] Verification [ ] Validation [ ] Revalidation

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TYPE G or M	PAGE	SECTION OR LINE #	COMMENT	DISPOSITION	Disposition Accepted INIT/DATE
M		4.7	Black ink only, please Does not totally deal with Data MGT. this section deals primarily with programatic requirements. cost planning etc. Data Management deals with the flow, processing, analytical review of data. Data management does not set programatic requirements. See Data MGT Plan attached for outline		

POC/Reviewer: (Comments not signed by POC/Reviewer will be considered unofficial and not subject to resolution)

[ ] No Comments

[ ] This procedure revision has no impact or relevance to our discipline or organization and we waive need to concur

DERRYL STAGG — Name

Signature

6991 — Ext/Pager/Fax

080/SM /Stiger — Bldg./Dept/AGM

27 May 94 — Date

Resolutions Accepted

Initials _____ Date _____

76

Note: These reviews are completed by qualified reviewers in accordance with 1-A03-PPG-004 in concert with 1-A01-PPG-001 and 1-A02-PPG-003

RF-47947 (5/93)

Initial Draft
May 13, 1994

DATA MANAGEMENT [redacted] PLAN
TABLE OF CONTENTS

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J-M
pls file
5:3 - 24-92

AUDIT 24-92
ENVIRONMENTAL MANAGEMENT

Category	Issue	Question #	Concurrence	Requirement	Corrective Action	Budget WP #	Schedule	Action
Training	Records Personnel Unaware of Their Own Procedures 3-21000-ADM-17.01	11 (21) (3)	Yes	External	Train Personnel		* Pending development of training program	Benedetti/ Schmidt
Procedure Compliance	Documentation of Training & Qualifications Incomplete/Inadequate	3	Yes	External	Implement Training Program		* Pending development of training program	Benedetti/ Schmidt
	Development of Position Descriptions	4		Internal	Implement Training Program		* Pending development of training program	Benedetti/ Schmidt
	Lack of Readiness Review Board Review/Concurrence	5	Yes	Internal	Revise Procedure to Eliminate Readiness Review Board Requirement		60 days from response to CAR	Schmidt/ SAIC
	Failure to Issue Monthly QA Evaluation Report	7	Yes	Internal	Revise Procedure to Eliminate the Requirement		90 days from response to CAR	Schmidt/ SAIC
	Inspection Program Inadequacies	15	Yes	External	- Train - Revise Procedures - Institute NCR Program		90 days from response to CAR	Schmidt/ SAIC
	Failure to Comply with Root Cause Analysis Requirements in Procedure	17	Yes	Internal	- Revise Procedure - Train		90 days from response to CAR	Schmidt/ Lingo
	Failure to Transmit Internal CARs to FQA for Entry into Commitment Tracking Database	19	Yes	Internal				

Category	Issue	Question #	Concurrence	Requirement	Corrective Action	Budget WP #	Schedule	Action
Procedure Compliance (continued)	Record Management Process not Implemented (Procedures not being followed)	21	Yes	External	- Train - Implement Program		60 days from response to CAR	Frick
	Inadequate Follow-up/Closure for Identification Deficiency	22	Yes	External	- Train - Implement Procedures		90 days from response to CAR	Schmidt/ SAIC
	Procedures 3-21000-ADM-15.01 and 16.01 have not been submitted to Facilities Quality Assurance for review	12	Yes	External	- Develop Implement Plan - Submit Documents to QA for Review		60 days from response to CAR	Schmidt/ SAIC
Contested	Document Review Packages Missing	9	Yes	External	- Document Loss of review Packages		30 days from response to CAR	McInroy/ SAIC
	Performance of Work Before Approval of Procedures	10	Yes	External				
	Lack of Review Criteria for Procedure Review	13	No	None				
	Document Review Package Lost	20	Yes	External	See Question 9			
	Lack of Performance of Audits	23	Yes	External	Delete Requirements from QAPD, QAPjP, Audit Schedule		30 days from response to CAR	Lingo
Inadequate Follow-through	No Follow-up on Internal CARs	19	Yes	External	- Train - Implement Procedures		• Pending Development of Training Program	Benedetti/ Schmidt
	No Follow-up on Internal NCRs	16	Yes	External	- Train - Revise Procedures - Implement Procedures		60 days from response to CAR	Schmidt/ SAIC

F:6 5.3.3

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 2

DESCRIPTION/REFERENCES:

Verify that the following training and qualifications have been documented for EM personnel:

education, work experience, licenses and certifications;
quality assurance orientation;
indoctrination, including the QAPD, QAPjP, work plans, procedures, regulations and codes.

Environmental Management Administration Procedure 3-21000-ADM-02.01, Training, Revision 0, Paragraphs 5.1, 5.2, and 5.3., respectively.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Training records of EM personnel were reviewed. These records were obtained from the Resource Information Management Environmental Specialist IV. None of these training records are found in the EM records management system.

Training records of the following individuals, by employee number, were reviewed:

515411, 514655, 515535, 515666, 516575, 515881, 515709, 511143, 517691, 517516, and 514659.

The training files for these individuals, with one exception, contained a Student Training History; Core Training Requirements; and a computer print out of completed training. The one exception, employee # 517516, did not contain any information. None of the records found in any of the training records reflect the information required by the above referenced requirements.

UNSATISFACTORY - SEE DR AA-92-XX

PERSONNEL CONTACTED: Barbara Cantwell DATE: September 9, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 3

DESCRIPTION/REFERENCES:
Verify that position descriptions have been developed and are found in the EM records center.

Environmental Management Administration Procedure 3-21000-ADM-02.02, Personnel Qualifications, Revision 0, Paragraph 5.6.

RESULTS/REMARKS/OBJECTIVE EVIDENCE: Position descriptions (PDs) are found with the Resource Information Management Environmental Specialist IV. None of the PDs are found in the EM records management system. The EM records management system is in the development stages.

A review of PDs from the Environmental Resources Information Management Division (ERIMD, 21600); Air Quality and Chemical Tracking Division (AQCTD, 21300); and the Earth Resources Division (ERD, 21200) was conducted. This review consisted of examining approximately 75 submitted PDs. It appears that these PDs were developed in order to match the qualifications of individuals for the position instead of developing the position and identifying qualified personnel. In many cases attention to detail was lacking. For example:
From the ERIM Division:

One of the PDs is as follows:

EM Division Title: Doer of many things
Position Title: Clerk IV
Minimum Education Requirements for Position: 4 years college (currently working towards BA in English studies, Fine Arts and Environmental Conservation
Minimum Experience: 2 years Assistant Manager Retail/Repair Outlet
3 years Paste up Artist/Associate Publisher local newspaper and magazine
1 year owner/manager local sports paper
2.5 years budget
1 year general administration

This PD is signed by the responsible EMD Manager.
Many other PDs developed by ERIM were found to be similar to this one and many others did not specify minimum experience.

continued on next page

PERSONNEL CONTACTED: Barbara Cantwell DATE: September 9, 10, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: September 10, 1992

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CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 3 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

From the AQCT Division:

Inconsistencies in the minimum education and experience requirements for the (various) Environmental Engineering positions (I through VI) are evident. For example:

Environmental Engineer II requires a BS degree plus 4-6 years experience while most of the Environmental Engineer III positions require a BS degree with 1-2 years experience, a difference of 2-4 years experience. Also, one of the Environmental Engineer III positions require as little as 1/2 years experience, thus creating more difference in minimum experience requirements.

One of the Environmental Engineer V positions require a High School education plus 1.5 years college and 8 years experience while another Environmental Engineer V position requires a BS degree in a technical major and 7-10 years experience. How does 1.5 years of college equate with a BS degree in a technical major with a like number of years of experience?

The Environmental Engineer VI positions are likewise incongruent. One position requires a BS degree with 12-15 years experience while another position requires 1.5 years of college with no specified minimum experience. Again, how does 1.5 years of college equate with a BS degree?

The two Data Base Specialist-Clerk III PDs were found to be identical.

4 individuals have yet to have their respective PDs completed.

3 PDs were identified in which the approving signature did not reflect the authorized approver.

4 PDs were signed but are incomplete.

continued on next page

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 3 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

From the ER Division

The quality of the PDs developed for this group were found to be consistent in that attention to detail was evident. Each section of each PD contained information generic enough to allow the PD to be applicable to any individual with similar qualifications. Through review of each of the PDs, it was apparent that a lot of thought went into their preparation. Each of the prepared PDs were found signed, and none were found incomplete. A PD was developed for each position, including many positions which are currently vacant. None of the PDs represented grossly extraneous minimum requirements expected for a particular position. However, one of the PDs appear to be developed for a specific individual. This PD was developed for an Engineer Environmental VI position, which requires a PhD in Nuclear Physics education and at least 10 years experience, but no more than 15 years experience. The auditor questions whether this individual will be removed from the position upon achievement of the 15 years of experience.

In conclusion, the completion of position descriptions by Environmental Management Department personnel and the subsequent approval by the respective supervisors/managers is not receiving adequate attention. 3-21000-ADM-02.02, Personnel Qualifications, is inadequate because the purpose for completing the Position Description form or the instructions for doing so are not provided. Also, the procedure provides a Position Description form for contract personnel but does not do the same for EG&G employees.

Addendum to this Checklist Question.

3-21000-ADM-02.02, Personnel Qualifications, Revision 0, Paragraph 5.1.1 requires Division Managers to review applicable Position Information Questionnaires (PIQs) and references Attachment 1 of the procedure, which does not appear as a PIQ. Paragraph 5.3.1 of this same procedure also references a Qualification Record as Attachment 1, which does appear as such. Paragraph 5.1.1 is in obvious error. Neither the PIQ or the Qualification Record were made available for review during this audit.

End of Question #4 UNSATISFACTORY - SEE DR-AA-92-XX

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 4

DESCRIPTION/REFERENCES:

Verify the performance of readiness reviews. Were these readiness reviews planned, performed, and documented in accordance with 3-21000-ADM-18.03, Readiness Review.

Environmental Management Quality Assurance Program Plan Description, Section 2.0, Quality Assurance Program, Revision 0, Paragraph 2.5.

RESULTS/REMARKS/OBJECTIVE EVIDENCE: See Question #19 concerning surveillances for a discussion about the EM readiness/surveillance schedule.

A review of the EM readiness review program was conducted using the EM administrative procedure 3-21000-ADM-18.03, Revision 0, Readiness Review. The effective date of this procedure is 8/21/91. All readiness reviews considered during this audit had been conducted subsequent to the effective date of the administrative procedure. Available records of following readiness reviews were reviewed for this audit:

O&M of the 881 Hillside (OU-1) IM/IRA
Planned date: 2/28/92
Activity identifier: QAA 1.5
Conducted: 3/2/92

Phase 1 RFI/RI, Land Surface, Great Western Reservoir, Standley Lake, and Mower Reservoir, (OU-3),
Planned: 5/15/92
Activity identifier: QAA 3.1
Conducted: 5/15/92

Phase 1 RFI/RI, Woman Creek Priority Drainage (OU-5)
Planned: 7/1/92
Activity identifier: QAA 5.1
Conducted: 7/1/92

continued on next page

PERSONNEL CONTACTED: Larry McInroy DATE: September 11, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: September 11, 1992

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 4 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Phase 1 RFI/RI, Walnut Creek Priority Drainage (OU-6)
Planned: 7/7/92
Activity identifier: QAA 6.1
Conducted 7/7/92

Specifically, the following Sections of the EM administrative procedure 3-21000-ADM-18.03, Readiness Review, were considered in making a comparison of the records of the listed readiness reviews:

Section 5.1, Preparation of the Readiness Review Notice;
Section 5.2, Selection of the Board and Team;
Section 5.3, Prepare Checklist;
Section 5.4, Complete Checklist;
Section 5.5, Conduct Review;
Section 5.6, Resolution of Comments;
Section 5.7, Approve Checklist and Prepare Readiness Review Record Memorandum; and
Section 5.8, Documenting the Readiness Review Decision.

Each of the above readiness reviews were announced via a notification as required by Section 5.1. The dates of the notifications are as follows: 2/28/92, 5/8/92, 6/24/92, and 7/1/92, respective of the order of the readiness reviews listed above. The notification contained information pertaining to the subject and scope of the readiness review and included the names of the readiness review board, chairman of the readiness review board, readiness review team members and the readiness review team leader.

continued on next page

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 4 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

A checklist was prepared and completed for each of the conducted readiness reviews. Each checklist was found to be extensive in scope and comments were found to be in great detail. Section 5.5.2 of the EM administrative procedure, 3-21000-ADM-18.03, requires the readiness review board to review the completed checklists and provide comments to the Team for resolution. The comments are to be provided on Attachment 3 of the procedure, Readiness Review Comment Record. None of the records of the four readiness reviews considered during this audit contained this document. Section 5.5.1 of the procedure requires the Team Leader to submit the completed checklist to the readiness review board with the Readiness Review Comment Record. Neither a blank nor a completed Readiness Review Comment Record for any of the considered readiness reviews was made available for this audit.

A memorandum announcing the findings of the readiness review accompanied by the completed checklist was initiated and forwarded to the RPD Manager, Board Chairperson, Team Leader, EM Department Quality Assurance Program Manager and affected organizations.

continued on next page

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

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CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 4 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

The readiness review documentation packages reviewed during this audit did not contain the following:

Evidence of training in the Readiness Review procedure and other applicable documents by the Board and Team members (retention of documentation of training in the readiness review documentation package is not specified by this procedure but the training records are not located else where either) (paragraphs 5.2.2 and 5.2.5);

Evidence that fault tree or other formal analytical method of developing the readiness review checklist (paragraph 5.3.1);

Evidence that the Readiness Review Board reviewed and approved the checklist prior to the performance of the readiness review (paragraph 5.3.3);

Evidence that open items identified during the readiness review were satisfactorily closed (paragraph 5.4.1); and

Evidence that the RPD Manager reviewed and approved or disapproved the recommendations submitted by the Board for RFI/RI activities (paragraph 5.7.5).

End of Question #4 UNSATISFACTORY SEE DR AA-92-XX

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 24

DESCRIPTION/REFERENCES:

Verify the performance of Surveillances. Were these surveillances planned, performed, and documented in accordance with 3-21000-ADM-18.02, Surveillance.

Environmental Management Quality Assurance Program Plan Description, Section 18.0, Audits and Surveillances, Revision 0, Paragraph 2.2.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Reviewed the EG&G Rocky Flats Environmental Management Department FY 92 Readiness Review, Surveillance and Audit Schedule, effective date is 07/28/92. Schedule approval is 07/27/92 by the EM QA Program Manager. Activity references are QAA 1.3, 1.5, 2.2, 2.5, 2.6, 3.1, 5.1, 6.1 and 7.1. Surveillance is planned or has been conducted for all activities listed on the schedule.

Readiness Review/Surveillance schedules were developed May, 91; June, 91; July, 91; August, 91; May 2, 92; May 28, 92; and July, 92. The more recent schedule adopts the scheduling of audits, however, none are assigned any dates. The performance of these audits is only planned. The planned audits include Procedure Preparation; Document Control; Work Plan Preparation; and Procurement Document Control.

A review of past schedules finds that adjustments in Readiness Review and Surveillance topics and dates are being adjusted constantly. For example:

From the May 2, 1991 schedule:

OU-2.4, Traceability Study, RR scheduled for 5/28/91 was rescheduled for 7/29/91 by the 6/24/91 schedule. The surveillance portion of the schedule was likewise modified from 6/15/91 to 7/29/91. Then in the 7/19/91 schedule OU-2.4 RR is rescheduled for 8/8/91. Additional RR and surveillance subjects are added in later schedules, namely QAA-1.3, Process Treatment Systems; QAA-2.5, Traceability Studies; and QAA-3.1, Land Surface, Great Reservoir, Standley Lake, and Mower Lake.

continued on next page

PERSONNEL CONTACTED: Larry McInroy DATE: September 11, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: September 11, 1992

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 21 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

The latest (7/27/92) RR/Surv./Audit schedule reflects 18 activities to be RR, survl, or audited. The first documented schedule (5/2/91) contained seven activities to be RR or surveilled. Audits were not scheduled on this earlier schedule. The EM oversite program is growing as indicated by the increase in the number of oversite activates, i.e., readiness reviews, surveillance and audits, and as indicated by the increase in the number of activities being looked at.

Environmental Management Department schedules a surveillance after a readiness review has been conducted of a particular activity. Surveillance reports were reviewed to determine compliance to the EM administrative procedure, 3-21000-ADM-18.02, Surveillance, Revision 0. The effective date of 3-21000-ADM-18.02 is May 11, 1992. The three most recent surveillances were reviewed and are as follows:

EMSURV-92-01, Oversight of DOE 5400.1, Environmental Monitoring and Surveillance Program, conducted 3/18/92;
EMSURV-92-02, RFI/RI Drill Cuttings Management, conducted 4/30/92; and
EMSURV-92-03, O&M of the 881 Hillside (OU-1) IM/IRA, conducted 8/10/92.

Section 5.1, Surveillance Schedule; Section 5.2, Surveillance Personnel; Section 5.3, Surveillance Checklist; Section 5.4, Surveillance Observations and Conduct; Section 5.5, Draft Surveillance Report; and Section 5.7, Final Surveillance Report of 3-21000-ADM-18.02, Surveillance, were used to evaluate the three reviewed surveillance reports. All three surveillances were found to have been conducted as specified by the administrative procedure with the following exceptions:

Paragraph 5.1.3 of 3-21000-ADM-18.02 requires a 5 day notification of surveillances. EMSURV 92-01 was conducted 3/18-92 while the notice was issued 3/17/92, a one day difference. EMSURV 92-02 was conducted 4/30/92 while the notice was issued 4/29/92, again, a one day difference. Both surveillances were conducted prior to the May 11, 1992 effective date, however. No notification letter was found for EMSURV 92-03; and

continued on next page

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 21 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Significant surveillance observations were not recorded as nonconformances. Eight "observations" were identified as a result of EMSURV 92-01. Each of these observations were reviewed by the auditor and were determined to be legitimate nonconformances. EMSURV 92-02 identified three nonconformances as deficiencies. EMSURV 93-03 identified four nonconformances as deficiencies. None of these identified nonconformances were recorded on a Deficiency Report form as required by the EM administrative procedure 3-21000-ADM-15.01, Control of Nonconforming Items and Activities. The effective date of 3-21000-ADM-15.01 is 9/23/91, several months before the performance of these surveillances.

In general, however, the surveillances were found to have been performed satisfactorily. The checklists were extensive in scope and detailed in comments. The surveillance procedure was found to be extensive and detailed. The surveillance reports were found to be complete when compared against the procedure.

End of Question #?

UNSATISFACTORY SEE DR AA-92-XX

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

FAX TRANSMITTAL COVER SHEET

Date: 10/6/92

To: Larry McInroy Organization: _____

FAX No: 279-5525 (FAX No: (303) 966-8663)

From: Hap Lingo (Verify : (303) 966-8668)

Organization: _____

Comments:

Total pages (including cover sheet): 43

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CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT OK

QUESTION NO.: 1

DESCRIPTION/REFERENCES:

Obtain and review past oversite activity reports (audits, surveillance, inspections from DOE, EG&G, ORR, EPA, State of Colorado, etc.).

Assurance Audits Handbook, 4-50010-AA-001, July 1, 1992, Section 5, Instructions, paragraph 5.3.1.2.3.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

The most recent and relevant audit (#02-92) by Assurance Audits was accomplished October 24, 1991 through December 18, 1992. The audit subject was Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Resources Conservation and Recovery Act (RCRA) compliance. This audit resulted in 16 findings and three observations. 10 of the 16 findings were issued to the EM QAPM. These deficiencies are based on the requirements of the ER Site-Wide Quality Assurance Project Plan. The results of this audit were reviewed for applicability to this audit.

The scope of audit 02-92 included the implementation of CERCLA and RCRA requirements for several EG&G Rocky Flats Plant organizations and contractors, including the Environmental Management Department of the Environment and Waste Management Division of EG&G Rocky Flats.

In contrast, the scope of this audit was limited to the EM Department Quality Assurance Program Description and to the EM Department itself. The intent of this audit was to verify the applicable elements of a QA program had been developed, documented, and effectively implemented.

Two of the deficiencies identified as a result of the CERCL/RCRA audit are germane to this audit. The deficiencies are in the areas of training and the performance of oversite activities. Both of these activities are again identified as deficient conditions by this audit.

continued on next page

PERSONNEL CONTACTED: Larry McInroy DATE: October 1, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: October 1, 1992

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CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 1 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Also, as part of this audit, deficiencies identified by other RFP QA organizations were also reviewed. Most notably, EMD has been issued three Corrective Action Requests since April, 1992. Several deficient conditions were identified, as a result of surveillance (#92-SQE-NBS-017), which resulted in the issuance of CAR 92-0042. The argument made by this CAR is that procedure and instruction development by the Environmental and Wasted Management Division, including EMD, excluded RFP Site-QA involvement. CAR 92-044 was issued because EMD failed to include independent QA oversight in it's activities affecting quality. CAR 92-0067 was issued because EMD has implemented a procurement process outside that of Procurement Quality Support (PQS).

The common premise of these CARs is that EM has, in some way, excluded the RFP Quality Assurance organization, as well as other organizations. Each of the deficient conditions documented by these CARs has resulted in a lack of quality in the implementation of the particular activity, i.e., procurement of items and services were made without assurance of the quality of the delivered goods; the quality of the work accomplished by EM is indeterminate because the procedures addressing these work activities are inadequate; the quality of field data, in some cases, is suspect because requisite chain-of-custody provisions were not adequately proceduralized, implemented, nor were independent oversight activities invoked. Cumulatively, these CARs represent the propensity of the Environmental Management Department to circumvent the practices and procedures established by various RFP organizations, which when implemented, assure the quality of activities.

The auditor requested from the EM QAPM reports of oversight activities from the following federal and state government organizations: Colorado Department of Health; US Department of Energy; and US Environmental Protection Agency. A report from the US DOE was provided by the EM QAPM. The following is information provided by the cover page of the report:

FINAL FIELD ASSESSMENT REPORT on ECOLOGICAL SAMPLING ACTIVITIES at the US DEPARTMENT OF ENERGY ROCKY FLATS PLANT; Golden, Colorado; Assessment Dates: June 29 - July 1, 1992, July 14 - 16, 1992; Report Date: August 6, 1992; Revision 0; Prepared by the HAZARDOUS WASTE REMEDIAL ACTION PROGRAM (HAZWRAP); Oak Ridge, Tennessee 37831-7606; Managed by MARTIN MARIETTA ENERGY SYSTEMS INC. for the US DEPARTMENT OF ENERGY under contract DE-AC05-84OR21400.

continued on next page

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

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CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 1 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:
The results of this report are as follows:

Academic training and professional field experience of leaders of field sampling work crews exceeded the minimum requirements;

One individual did not have the required SARA and OSHA training, this was corrected immediately;

Field sampling personnel performed sampling activities according to the Health and Safety Plan;

Health and Safety Plan was lacking approval signatures;

Field sampling was not always accomplished as required by EG&G field sampling instructions;

The Environmental Evaluation Work Plan/Sampling and Analysis Plan for Operable Unit #3 was found inadequate;

The collection of field data, specifically the sampling of birds, was not accomplished in accordance with the specified instruction, thus allowing the data to be biased;

Strict adherence to many of the procedures was not made;

Improvements to many of the field sampling procedures were recommended;

Procedures, instructions and plans were not always available to field sampling personnel;

Implementation of proposed and approved corrective actions is not always accomplished;

Control of procedures, instructions, and plans is not always being accomplished; and

The impact of deficient field sampling activities on the attainment of Data Quality Objectives (DQOs) is such that an overall assessment of DQOs cannot be made.

End of Question #1

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 2

DESCRIPTION/REFERENCES:

Verify that the Environmental Management Department Director approves EM Department-level procedures, instructions, and plans.

Environmental Management Quality Assurance Program Plan Description, Section 1.0, Organization, Revision 0, Paragraph 4.1.4.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Reviewed the following documents for compliance to this requirement:

Environmental Management Quality Assurance Program Description, 21000-QAPD, Revision 0
All approved EM Administrative procedures
RFI/RI Work Plan OU-3, 211000-WP-OU-3.1
Startup, Operations and Maintenance of the IM/IRA for the 881 Hillside OU-1,
Phase I RFI/RI Work Plan OU-4, Solar Evaporation Ponds, 21100-WP-OU-4.01
Phase I RFI/RI Work Plan OU-5, Woman Creek Priority Drainage, 21100-WP-OU-5.1

The QAPD and EM administrative procedures were found to be approved by the EM Department Director. None of the work plans, however, were found to have been approved by this individual.

UNSATISFACTORY - SEE DR AA-92-XX

PERSONNEL CONTACTED: Larry McInroy DATE: October 1, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: October 1, 1992

CHECKLIST QUESTIONS

OK

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 3

DESCRIPTION/REFERENCES:

Verify that the following training and qualifications have been documented for EM personnel:

education, work experience, licenses and certifications;
quality assurance orientation;
indoctrination, including the QAPD, QAPjP, work plans, procedures, regulations and codes.

Environmental Management Administration Procedure 3-21000-ADM-02.01, Training, Revision 0, Paragraphs 5.1, 5.2, and 5.3., respectively.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Training records of EM personnel were reviewed. These records were obtained from the Resource Information Management Environmental Specialist IV. None of these training records are found in the EM records management system.

Training records of the following individuals, by employee number, were reviewed:

515411, 514655, 515535, 515666, 516575, 515881, 515709, 511143, 517691, 517516, and 514659.

The training files for these individuals, with one exception, contained a Student Training History; Core Training Requirements; and a computer print out of completed training. The one exception, employee # 517516, did not contain any information. None of the documents found in any of the training records reflect the information required by the above referenced requirements.

Discussions with records management personnel revealed that they were not aware of Attachment 2 of 3-21000-ADM-17.01, indicating a lack of training of records management personnel. Also, these personnel did not have a copy of 3-21000-ADM-17.01 available to them nor did they know of it's existance.

This deficient condition has been previously identified as a result of Assurance Audit AA-02-92 and documented as DR-AA-92-04.

UNSATISFACTORY - SEE DR AA-92-XX

PERSONNEL CONTACTED: Barbara Cantwell DATE: September 9, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: _____

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CHECKLIST QUESTIONS

OK

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 4

DESCRIPTION/REFERENCES:
Verify that position descriptions have been developed and are found in the EM records center.

Environmental Management Administration Procedure 3-21000-ADM-02.02, Personnel Qualifications, Revision 0, Paragraph 5.6.

RESULTS/REMARKS/OBJECTIVE EVIDENCE: Position descriptions (Pds) are found with the Resource Information Management Environmental Specialist IV. None of the Pds are found in the EM records management system. The EM records management system is in the development stages.

A review of Pds from the Environmental Resources Information Management Division (ERIMD, 21600); Air Quality and Chemical Tracking Division (AQCTD, 21300); and the Earth Resources Division (ERD, 21200) was conducted. This review consisted of examining approximately 75 submitted Pds. It appears that these Pds were developed in order to match the qualifications of individuals for the position instead of developing the position and identifying qualified personnel. In many cases attention to detail was lacking. For example:
From the ERIM Division:

2 with case files for an employee

One of the Pds is as follows:

EM Division Title: Doer of many things
Position Title: Clerk IV
Minimum Education Requirements for Position: 4 years college (currently working towards BA in English studies, Fine Arts and Environmental Conservation
Minimum Experience: 2 years Assistant Manager Retail/Repair Outlet
3 years Paste up Artist/Associate Publisher local newspaper and magazine
1 year owner/manager local sports paper
2.5 years budget
1 year general administration

This PD is signed by the responsible EMD Manager.
Many other Pds developed by ERIM were found to be similar to this one and many others did not specify minimum experience.

continued on next page

UNSATISFACTORY - SEE DR AA-92-XX

PERSONNEL CONTACTED: Barbara Cantwell DATE: September 9, 10, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: September 10, 1992

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CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 4 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

From the AQCT Division:

Inconsistencies in the minimum education and experience requirements for the (various) Environmental Engineering positions (I through VI) are evident. For example:

Environmental Engineer II requires a BS degree plus 4-6 years experience while most of the Environmental Engineer III positions require a BS degree with 1-2 years experience, a difference of 2-4 years experience. Also, one of the Environmental Engineer III positions require as little as 1/2 years experience, thus creating more difference in minimum experience requirements.

One of the Environmental Engineer V positions require a High School education plus 1.5 years college and 8 years experience while another Environmental Engineer V position requires a BS degree in a technical major and 7-10 years experience. How does 1.5 years of college equate with a BS degree in a technical major with a like number of years of experience?

The Environmental Engineer VI positions are likewise incongruent. One position requires a BS degree with 12-15 years experience while another position requires 1.5 years of college with no specified minimum experience. Again, how does 1.5 years of college equate with a BS degree?

The two Data Base Specialist-Clerk III Pds were found to be identical.

4 individuals have yet to have their respective Pds completed.

3 Pds were identified in which the approving signature did not reflect the authorized approver.

4 Pds were signed but are incomplete.

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PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 4 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

From the ER Division

The quality of the Pds developed for this group were found to be consistently adequate in that attention to detail was evident. Each section of each PD contained information generic enough to allow the PD to be applicable to any individual with similar qualifications. Through review of each of the Pds, it was apparent that a lot of thought went into their preparation. Each of the prepared Pds were found signed, and none were found incomplete. A PD was developed for each position, including many positions which are currently vacant. None of the Pds represented grossly extraneous minimum requirements expected for a particular position. However, one of the Pds appear to be developed for a specific individual. This PD was developed for an Engineer Environmental VI position, which requires a PhD in Nuclear Physics education and at least 10 years experience, but no more than 15 years experience. The auditor questions whether this individual will be removed from the position upon achievement of the 15 years of experience.

Why do you Care?

In conclusion, the completion of position descriptions by Environmental Management Department personnel and the subsequent approval by the respective supervisors/managers is not receiving adequate attention. 3-21000-ADM-02.02, Personnel Qualifications, is inadequate because the purpose for completing the Position Description form or the instructions for doing so are not provided. Also, the procedure provides a Position Description form for contract personnel but does not do the same for EG&G employees.

Addendum to this Checklist Question.

3-21000-ADM-02.02, Personnel Qualifications, Revision 0, Paragraph 5.1.1 requires Division Managers to review applicable Position Information Questionnaires (PIQs) and references Attachment 1 of the procedure, which does not appear as a PIQ. Paragraph 5.3.1 of this same procedure also references a Qualification Record as Attachment 1, which does appear as such. Paragraph 5.1.1 is in obvious error. Neither the PIQ or the Qualification Record were made available for review during this audit.

End of Question #4

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

OK

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 5

DESCRIPTION/REFERENCES:

Verify the performance of readiness reviews. Were these readiness reviews planned, performed, and documented in accordance with 3-21000-ADM-18.03, Readiness Review.

Environmental Management Quality Assurance Program Plan Description, Section 2.0, Quality Assurance Program, Revision 0, Paragraph 2.5.

RESULTS/REMARKS/OBJECTIVE EVIDENCE: See Question #23 concerning surveillances for a discussion about the EM readiness/surveillance schedule.

A review of the EM readiness review program was conducted using the EM administrative procedure 3-21000-ADM-18.03, Revision 0, Readiness Review. The effective date of this procedure is 8/21/91. All readiness reviews considered during this audit had been conducted subsequent to the effective date of the administrative procedure. Available records of following readiness reviews were reviewed for this audit:

O&M of the 881 Hillside (OU-1) IM/IRA
Planned date: 2/28/92
Activity identifier: QAA 1.5
Conducted: 3/2/92

Phase 1 RFI/RI, Land Surface, Great Western Reservoir, Standley Lake, and Mower Reservoir, (OU-3),
Planned: 5/15/92
Activity identifier: QAA 3.1
Conducted: 5/15/92

Phase 1 RFI/RI, Woman Creek Priority Drainage (OU-5)
Planned: 7/1/92
Activity identifier: QAA 5.1
Conducted: 7/1/92

continued on next page

UNSATISFACTORY - SEE DR AA-92-XX

PERSONNEL CONTACTED: Larry McInroy DATE: September 11, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: September 11, 1992

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CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 5 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Phase 1 RFI/RI, Walnut Creek Priority Drainage (OU-6)
Planned: 7/7/92
Activity identifier: QAA 6.1
Conducted 7/7/92

Specifically, the following Sections of the EM administrative procedure 3-21000-ADM-18.03, Readiness Review, were considered in making a comparison of the records of the listed readiness reviews:

Section 5.1, Preparation of the Readiness Review Notice;
Section 5.2, Selection of the Board and Team;
Section 5.3, Prepare Checklist;
Section 5.4, Complete Checklist;
Section 5.5, Conduct Review;
Section 5.6, Resolution of Comments;
Section 5.7, Approve Checklist and Prepare Readiness Review Record Memorandum; and
Section 5.8, Documenting the Readiness Review Decision.

Each of the above readiness reviews were announced via a notification as required by Section 5.1. The dates of the notifications are as follows: 2/28/92, 5/8/92, 6/24/92, and 7/1/92, respective of the order of the readiness reviews listed above. The notification contained information pertaining to the subject and scope of the readiness review and included the names of the readiness review board, chairman of the readiness review board, readiness review team members and the readiness review team leader.

continued on next page

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 5 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

A checklist was prepared and completed for each of the conducted readiness reviews. Each checklist was found to be extensive in scope and comments were found to be in great detail. Section 5.5.2 of the EM administrative procedure, 3-21000-ADM-18.03, requires the readiness review board to review the completed checklists and provide comments to the Team for resolution. The comments are to be provided on Attachment 3 of the procedure, Readiness Review Comment Record. None of the records of the four readiness reviews considered during this audit contained this document. Section 5.5.1 of the procedure requires the Team Leader to submit the completed checklist to the readiness review board with the Readiness Review Comment Record. Neither a blank nor a completed Readiness Review Comment Record for any of the considered readiness reviews was made available for this audit.

A memorandum announcing the findings of the readiness review accompanied by the completed checklist was initiated and forwarded to the RPD Manager, Board Chairperson, Team Leader, EM Department Quality Assurance Program Manager and affected organizations.

continued on next page

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 5 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

The readiness review documentation packages reviewed during this audit did not contain the following:

Evidence of training in the Readiness Review procedure and other applicable documents by the Board and Team members (retention of documentation of training in the readiness review documentation package is not specified by this procedure but the training records are not located else where either) (paragraphs 5.2.2 and 5.2.5);

SHOULD

Evidence that fault tree or other formal analytical method of developing the readiness review checklist (paragraph 5.3.1);

Evidence that the Readiness Review Board reviewed and approved the checklist prior to the performance of the readiness review (paragraph 5.3.3);

Evidence that open items identified during the readiness review were satisfactorily closed (paragraph 5.4.1); and

Evidence that the RPD Manager reviewed and approved or disapproved the recommendations submitted by the Board for RFI/RI activities (paragraph 5.7.5).

End of Question #5

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

See LETTER

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 6

DESCRIPTION/REFERENCES:

Verify that EM has performed an internal management appraisal.

Does this internal appraisal assess the adequacy and effectiveness of the EM QA Program by evaluating the following:

adequacy of planning and procedural controls;

effectiveness of corrective actions;

adequacy of organization and staffing to implement the QA program;

adequacy of the indoctrination and training program; and

adequacy of the quality information tracking, evaluation, and reporting system?

Environmental Management Quality Assurance Program Plan Description, Section 2.0, Paragraph 2.10, Revision 0.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Internal management appraisals which reflect information required by the EM QAPD were not made available for this audit.

SHO

UNSATISFACTORY - SEE DR AA-92-XX

PERSONNEL CONTACTED: Larry McInroy DATE: October 1, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: October 1, 1992

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CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT OK

QUESTION NO.: 7

DESCRIPTION/REFERENCES:

Review the monthly EM QA Program information tracking and evaluation report and verify that the following information contains the following, as appropriate:

status of development and implementation of the QA Program;

status of resolution of significant conditions adverse to quality issues and trends; and

summary of Quality Assurance and EM Department management overview results, including both adverse and exemplary practices.

Environmental Management Quality Assurance Program Plan Description, Section 2.0, Paragraph 2.11, Revision 0.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Monthly EM QA program information and evaluation reports were not made available for this audit. Weekly SAIC to EG&G reports were provided, however. These reports reflect the activities of SAIC employees as it applies to EM QA program development and implementation. SAIC is the QA contractor to EM. 10 findings were issued to EM by Assurance Audits in February 7, 1992. A review of weekly SAIC reports to EG&G for the months of February and March did not find any mention of the issuance of these findings.

UNSATISFACTORY--SEE DR AA-92-XX

PERSONNEL CONTACTED: Larry McInroy DATE: October 1, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: October 2, 1992

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CHECKLIST QUESTIONS

AUDIT NO.: 24-92

Addressed by CAR

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 8

DESCRIPTION/REFERENCES:

Review procurement documents to verify the applicablilty and inclusion of QA requirements.

Environmental Management Quality Assurance Program Plan Description, Section 4.0, Procurement Document Control, Revision 0, Paragraph 2.3.3.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

EM administrative procedure, 3-21000-ADM-04.01, Procurement Document Control, Revision 0, effective may 11, 1992, Section 5.0, Instructions, paragraph 5.2.1.4, requires that the supplier have a documented and EMD - approved QA program, or that the supplier follows the EMD QAPD and other documents as applicable, i.e., QAPJP.

The EM Quality Coordinator supplied a list of procurement for which a QA requirements statement was prepared. Sample copies of these statements were also provided. Each of these statements are specifically designed for each statement of work. Various quality assurance criteria are invoked in the QA requirements statements. For example, the SOW for END 9-16-92 invokes QA criteria 2, 3, 5, 6, 10, 12, 13, and 15. The SOW for OLGA OU 2 FS invokes all of those for END 9-16-92 and QA criteria 1. Both QA requirements statements invoke the "accessibility" statement. Each of these QA requirements statements invoke specific EM administrative procedures or admonishes the supplier to submit their procures for review and approval by EMD.

A comparison the EM generic controlled document distribution list, provided by EM Document Control personnel, and a listing of known contractors was made. EMD employs approximately 24 contractors. Distribution of controlled documents is being made to approximately 12 of these contractors. Contractors, suspected of not being on the controlled distribution lists include the following: APEN; HAZWR; Weston; CONSU; Dames and Moore; Colorado State University; Woody; PSI; and JCC. There exists no requirement for distribution of the EM QAPD and procedures to be made to these contractors, however, it is prudent that if a supplier is to comply with EM QA requirements, then distribution of these documents would be made.

Continued on Next Page.

UNSATISFACTORY - SEE DR AA-92-XX

PERSONNEL CONTACTED: Mary Trent DATE: September 29, 1992

PERSONNEL CONTACTED: Mark Brooks DATE: October 1, 1992

AUDITOR: Robert M. Nilsson DATE: September 29, 1992

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 8 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

This audit did not verify that the SOW QA requirements statements were included in the final, approved procurement document, nor did this audit verify that all SOWs were submitted to the EM Quality Coordinator for review.

Site Quality Assurance has issued a Corrective Action Request (#92-0067) to J. M. Kersh, AGM for Environmental & Waste Management, for the failure of Environmental Management Department to evaluate suppliers; for maintaining it's own approved suppliers list; and for not including suppliers on the RFP approved suppliers list. Revision 1 of CAR 92-0067 further describes additional deficient conditions as:

E&WM has received a corrective action response from AEB Consultants, however, no acceptance of the proposed corrective action has been documented; and

An audit of Ecotek Laboratory Services and TMA/Eberline Laboratory, both conducted April, 1992, and both indicating findings, have yet to be issued to the supplier for corrective action.

End of Question #8

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 9

DESCRIPTION/REFERENCES:

Verify that the QAPD, QAPjP and the following procedures have been reviewed in accordance with 3-21000-ADM-05.05, Document Review, as well as subsequent revisions:

3-21000-ADM-5.05, Document Review
3-21000-ADM-6.01, Document Control
3-21000-ADM-10.01, Inspections
3-21000-ADM-15.01, Control of Nonconforming Items and Activities
3-21000-ADM-16.01, Corrective Action
3-21000-ADM-18.02, Surveillance
3-21000-ADM-18.03, Readiness Reviews
5-21000-OPS-FO.13, Containerizing, Preserving, Handling, and Shipping Environmental Samples;
5-21200-OPS-FO.13, ?;
5-21000-OPS-FO.16, Field Radiological Measurements;
5-21000-OPS-FO.02, Field Document Control;
5-21000-OPS-FO.14, Field Data Management;

Environmental Management Administrative Procedure, 3-21000-ADM-05.05, Document Review, revision 0, Section 2.0, Scope.

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RESULTS/REMARKS/OBJECTIVE EVIDENCE:

An attempt was made during this audit to review the document review records of the following documents, however, no record was made available:

EM Quality Assurance Program Description
EM Quality Assurance Project Plan
3-21000-ADM-6.01, Document Control;
3-21000-ADM-10.01, Inspections;
3-21000-ADM-16.01, Corrective Action; and
5-21000-OPS-FO.02, Field Document Control.

Continued on next page

UNSATISFACTORY SEE DR-92-XX

PERSONNEL CONTACTED: W. Lingo DATE: 9/21-23/92

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: 9/23/92

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 9 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

The following are what was found for the document review records evaluated during this audit:

Document ID #	Rev. #	Draft	Effective Date
3-21000-ADM-05.05	0	D	7/15/91
3-21000-ADM-05.05	0	C	4/15/91
3-21000-ADM-05.05	0	B	4/15/91
3-21000-ADM-05.04[1]	0	?	4/15/91
3-21000-ADM-15.01	0	A	TBD
3-21000-ADM-15.01	0	B	TBD
3-21000-ADM-15.01	0	C	TBD
3-21000-ADM-15.01	0	D	TBD

Document review records were completed by the following individuals for 3-21000-ADM-05.05:
Jean Reynolds; and
William Burdette.

Document review records were completed by the following individuals for 3-21000-ADM-15.01:
Jean Reynolds;
William Burdette;
M. C. Brousard; and
Robert Crocker.

[1]note: Document control personnel submitted a memorandum to the review file explaining that 3-21000-ADM-05.04 is a typo and that 3-21000-ADM-05.05 is the correct designation for this procedure.

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PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 9 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Document review records were found for the following documents, although specific information concerning the review of these records was not recorded:

3-21000-ADM-18.02, Surveillance;
3-21000-ADM-18.03, Readiness Reviews;
5-21000-OPS-FO.13, Containerizing, Preserving, Handling, and Shipping Environmental Samples;
5-21200-OPS-FO.16, Field Radiological Measurements; and
5-21000-OPS-FO.14, Field Data Management.

Paragraph 5.3 of 3-21000-ADM-5.05, Document Review requires that documents be reviewed for adequacy in the opinion of the reviewer and for compliance with the procedure that controlled preparation of the document. Additional specific review criteria may be identified at the discretion of the Review Executor. Paragraph 4.1 specifies that a reviewer is responsible to verify that documents are adequate and compliant with specified criteria.

Section 5.0, Procedure of 3-21000-ADM-5.01, Procedure Development, addresses document (procedure) review in paragraphs 5.8 and 5.9. Paragraph 5.8 requires the document author to invoke 3-21000-ADM-5.05, Document Review, and to solicit comments from the QAPM; at least one peer; each affected RFP organization; and others as designated by the responsible manager. Paragraph 5.9 requires the QAPM to review the document for compliance with higher level procedures and that this review is to verify that the document format is in compliance with these higher level procedures. In neither paragraph are specific review criteria provided, except in a very generic sense, nor is it required of the author or any other individual to identify the specific review criteria for a particular document.)?

See Question #8 for specifications on document review packages evaluated during this audit. None of these document review packages, including technical procedures, specify any qualitative or quantitative acceptance criteria. No mention was made as to how the documents related to the QAPD, QAPjP, project plans, laboratory or field testing methods, federal codes or standards.)?

continued on next page

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

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CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 9 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

EM administrative procedure 3-21000-ADM-02.02, Personnel Qualifications, was found inadequate because the purpose for developing position descriptions or the instructions for doing so is inadequate because a review of the Pds reveals inconsistencies in their development.

End of Question #9

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 10

Verify that EM Department activities are performed in accordance with documented and approved work plans, procedures, instructions, and/or drawings.

DESCRIPTION/REFERENCES: Environmental Management Quality Assurance Program Plan Description, Section 5.0, Plans, Procedures, Instructions and Drawings, Revision 0, Paragraph 2.1.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

EM and Waste Management (20000) has developed an EM and Waste Management Procedures and Master Index. The auditor reviewed the index with a run date of 8/18/92. Of the 40 planned administrative procedures, 21 are still in development.

EM checklist, #CL-21000-OPS-SW.17, Revision Draft C, was used for EM inspection #92-062. The checklist was unapproved at the time of the inspection activity. EM procedure 5-21000-OPS-SW.17, Revision Draft C, Pond/Reservoir Bottom Sediment Sampling, is an unapproved procedure used during the inspection activity.

UNSATISFACTORY - SEE DR AA-92-XX

PERSONNEL CONTACTED: Joan Novy DATE: September 4, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: October 1, 1992

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 11

Verify that EM Department procedures are available to personnel performing activities affecting quality.

DESCRIPTION/REFERENCES: Environmental Management Quality Assurance Program Plan Description, Section 6.0, Document Control, Revision 0, Paragraph 2.2.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Discussions with records management personnel revealed that they were not aware of Attachment 2 of 3-21000-ADM-17.01, indicating a lack of training of records management personnel. Also, these personnel did not have a copy of 3-21000-ADM-17.01 available to them nor did they know of it's existence.

The following work plans were reviewed to verify inclusion of QA requirements:

RFI/RI Work Plan OU-3, 211000-WP-OU-3.1, QA Addendum approved 4/16/92;
Startup, Operations and Maintenance of the IM/IRA for the 881 Hillside OU-1, QA Addendum approved 3/3/92;
Phase IRFI/RI Work Plan OU-4, Solar Evaporation Ponds, 21100-WP-OU-4.01, QA Addendum approved 4/3/92; and
Phase I RFI/RI Work Plan OU-5, Woman Creek Priority Drainage, 21100-WP-OU-5.1, QA Addendum approved 2/24/92

UNSATISFACTORY - SEE DR AA-92-XX

PERSONNEL CONTACTED: Larry McInroy DATE: October 1, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: October 1, 1992

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 12

DESCRIPTION/REFERENCES:

Verify that Facilities Quality Assurance has reviewed the EM Corrective Action procedure 3-21000-ADM-16.01, Control of Corrective Action Reports.

Verify that Quality Assurance has reviewed 3-21000-ADM-15.01, Control of Nonconforming Items and Activities?

Environmental Management Quality Assurance Program Plan Description, Section 16.0, Corrective Action, Revision 0, Paragraph 2.2 and Section 15.0, Control of Nonconforming Items, Revision 0, Paragraph 2.2, respectively.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Document Review records for EM administrative procedure 3-21000-ADM-16.01, Corrective Action, were not made available. Effective date of EM QAPD is 1/23/92. Effective date of 3-21000-ADM-16.01 is 5/11/92.

Document review records for EM administrative procedure 3-21000-ADM-15.01, Control of Nonconforming Items and Activities were available for evaluation. Document review records were completed by the following:

R. J. Crocker	Air Programs
M. C. Broussard	Environmental Program OPS
J. I. Reynolds	Ecology and NEPA
W. J. Burdelik	Regulatory Program
S. Terry	SAIC
K. S. Schoendaller	Environmental Program Operations

None of the individuals is from Quality Assurance.

Effective date of EM QAPD is 1/23/92. Effective date of 3-21000-ADM-15.01 is 9/23/91.

UNSATISFACTORY - SEE DR AA-92-XX

PERSONNEL CONTACTED: Larry McInroy DATE: September 16, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: September 17, 1992

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 13

DESCRIPTION/REFERENCES:

Verify that 3-21000-ADM-17.01, Records Management, was reviewed to verify that the requirements of the EM QAPD and the Training Users Manual 1-1000-TUM, Section 02.13.

Environmental Management Quality Assurance Program Plan Description, Section 17.0, Quality Assurance Records, Revision 0, Paragraph 2.2.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

The document review file for the EM administrative procedure 3-21000-ADM-17.01, Records Management, was reviewed. This file did not contain any instructions for the reviewers to address the requirements of the Training Users Manual or the EM QAPD. The approval date of 3-21000-ADM-17.01 is 2/28/92, whereas, the effective date of the EM QAPD is 1/23/92.

WHY SHOULD IT? NO REQUIREMENT

UNSATISFACTORY SEE DR AA-92-XX

PERSONNEL CONTACTED: Larry McInroy DATE: September 22, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: September 22, 1992

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CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 14

DESCRIPTION/REFERENCES:

Verify that the history of each sample, and its handling, is documented from its collection through all transfers of custody until it is transferred to an analytical laboratory.

Verify that an EG&G RFP Chain-of-Custody form is used.

Environmental Management Quality Assurance Program Plan Description, Section 8.0, Identification and Control Of Items, Samples, and Data, Revision 0, Paragraph 2.2.5.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

This question is not addressed at this time due to time constraints and due to the results of a US DOE report of assessment of field activities. See question # 1 for further details of this assessment.

PERSONNEL CONTACTED: Larry McInroy DATE: October 1, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: October 1, 1992

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CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 15

DESCRIPTION/REFERENCES:

Verify the performance of Inspections.

Were these inspections planned and performed in accordance with 3-21000-ADM-10.01, Inspections?

Environmental Management Quality Assurance Program Plan Description, Section 10.0, Inspection, Revision 0, Paragraphs 2.2.2 and 2.3.1, respectively.

RESULTS/REMARKS/OBJECTIVE EVIDENCE: The following information was gathered from a review of EM Inspection Reports:

Inspection Report #	Checklist #	Revision	Effective date	date of inspection	# of deviations found during inspection
92-062	CL-21000-OPS-SW.17	draft	none	9/1/92	7
	CL-21000-WP-OU3	0	none		
92-061	CL-21000-OPS-F0.13	2	9/3/92	8/27/92	3
	CL-21000-OPS-SW.6	1	9/3/92	8/27/92	
92-060	CL-21000-OPS-GT.2		none	8/26/92	8-17 - not quite sure
92-059	no checklist			8/20/92	
92-058	CL-21000-OPS-FO.14	2	none	8/6/92	3
92-057	CL-21000-OPS-GT.2		none	8/4/92	3
92-056	CL-21000-OPS-EE.02	0	none	7/29/92	4
92-055	no checklist			7/30/92	2
92-054	CL-21000-WP-OU3	0		7/29/92	5
	CL-21000-OPS-SW.6				
92-053	no checklist			7/23/92	2
92-052	no checklist			7/21/92	5

continued on next page

UNSATISFACTORY SEE DR-AA-92-XX

PERSONNEL CONTACTED: Larry McInroy DATE: September 21, 22, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: September 21, 22, 1992

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 15 continued
DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE: EM inspection checklists, CL-21000-OPS-GT.2; CL-21000-OPS-GT.7; and CL-21000-OPS-SW.6 (for EM Inspections Reports 92-060, 92-051, 92-047, respectively) were modified to address revisions to procedures for which these checklists were originally developed from. For example, EM Inspection checklist, CL-21000-OPS-GT.7, was developed for Revision 0 of 5-21000-OPS-GT.7, Logging and Sampling of Test Pits and Trenches. This checklist was modified to address Revision 2 of this procedure. None of these modified checklists were reviewed and approved by the EM QAPM prior to use, as required by paragraph 5.1.12 of 3-21000-ADM 10.01, Inspections. In addition, an inspection, 92-062, was performed using Checklist CL-21000-OPS-SW.17, as a draft checklist. The procedure, 5-21000-OPS-SW.17, Rev.0, Draft C, Pond/Reservoir Bottom Sediment Sampling, which was being implemented during the inspection activity, from which the inspection checklist was derived, was also a draft. In another case, the checklists, CL-21000-OPS-FO.13 and CL-21000-OPS-GT.2, for EM Inspection 92-061 (accomplished 8/27/92), had an effective date of 9/3/92, seven days after the date of the inspection.

Inspection Reports for inspections 92-059, 92-055, 92-053 and 92-052 were found without checklists, which is in conflict with paragraph 5.1.13 of 3-21000-ADM, 10.01, Inspections.

Paragraph 5.2.2.3 of 3-21000-ADM-10.01, Inspections, requires the inspector to inspect the items/activities addressed in the checklists. Through discussions with the EM QAPM it was learned that the inspectors are not expected to address every item in the checklist for every inspection. The auditor obtained several inspection reports wherein the same checklists had been used repeatedly. These same checklists, from different inspection activities, were compared with each other in order to verify that all items in a checklist are being addressed. For example, the checklist CL-21000-OPS-EE.02 was used in EM inspections 92-056 and 92-048. A comparison of the completed items of this checklist was made to verify that all items of the checklist had been addressed at least once.

In making these comparisons it was discovered that some checklists had multiple applications, for example, checklist CL-21000-OPS-EE.02, was developed to address procedure 5-21200-Ecology-5.2, Sampling of Benthic Macroinvertebrates. This procedure addresses the sampling of biota in both ponds and streams. Sampling methods in ponds is different than that of streams. In making the comparison of common checklists when the checklists were used in different applications, consideration was given to those areas of a checklist which are common to the two separate applications, i.e., only those portions of the checklist common to both activities, such as personnel qualifications, were compared. Likewise, if an inspection was conducted of activities involving a stream and another inspection was conducted of activities involving the sampling of a pond, those portions of the checklist were not compared.

continued on next page

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 15 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

The following are the results of this "comparison" effort:

Checklist #	Inspection report #	% of those items not addressed by any inspection activity
CL-21000-OPS-EE.02	92-056 92-048	37
CL-21000-OPS-EE.04	92-056 92-048	19
CL-21000-OPS-GT.2	92-060 92-057	70
CL-21000-OPS-SW.6	92-054 92-047	28
CL-21000-OPS-FO.13	92-056 92-054 92-047 92-044	64

Obviously, not all items of the checklists are being addressed. Many items of the checklist may or may not be applicable, but instructions on the checklist only require "Initial if Completed". Neither the instructions, nor the EM administrative procedure, require an N/A if not applicable.

An inordinate number of items were not completed for two checklists, 70% of checklist CL-21000-OPS-GT.2 and 64% of checklist CL-21000-0PS-FO.13. In both situations, the incomplete checklist items were reviewed to determine applicability for the particular inspection. The auditor determined that these items were indeed applicable, they just weren't completed. Sections 4.2, Methods; 4.3, Sample Types; 4.4, QA/QC Sampling; and 6, Borehole Completion and Abandonment, of checklist CL-21000-OPS-GT.2, were consistently not addressed. This comparison was made between two submitted checklists.

continued on next page

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 15 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

The failure to complete Sections 5, Chain of Custody; 6, Field Data Documentation; 7, Radiation Screening of Samples by EG&G; 8, Shipping (general); 9, Shipping (medium and high level concentration); 10, Holding Times; 11, Documentation; and 12, Comments, of checklist CL-21000-OPS-FO.13, account for the high percentage of incompleteness for this checklist. Checklists from four separate inspections were used to make this comparison. Two of the inspection reports, 92-054 and 92-047, have identical comments made in Sections 8, Shipping and 11, Documentation, of this checklist. The second page of the checklist for inspection 92-054 is a xeroxed copy of the second page of the checklist used for inspection 92-047, alluding to the fact that completion of the checklists may be fraudulent.

Of the 12 opportunities (the comparison set of inspection reports) for the inspector to verify the qualifications and training of the participants performing the activity being inspected, four were verified. Eight separate inspections were conducted in which the verification of qualifications and training did not occur. This is in conflict with paragraph 5.2.2.2 of 3-21000-ADM-10.01, Inspections, which requires this verification activity.

Paragraph 5.2.2.4.2 requires the inspector to address all items of deviation and deficiency on the checklist. None of the checklists reviewed during this audit identified deviations or deficiencies. Deviations and deficiencies were noted in the body of the inspection report. Paragraph 5.2.2.6 of 3-21000-ADM-10.01, Inspections, requires the inspector to initiate a nonconformance report when appropriate. Of the ten EM Inspection reports reviewed, approximately 40 - 50 deficiencies were identified during the performance of inspections, yet not one of these deficiencies appear in the EM nonconformance system or the EG&G Rocky Flats Plant nonconformance system.

In conclusion, it is impossible to determine the adequacy of the activities being inspected from inspection reports or the checklists being completed. Also, it is apparent that the management of the EM Department is not reviewing these inspections or at least not taking appropriate action. This is evident by their failure to address the inadequate completion of checklists and the failure to at least document known deficiencies identified during inspections.

END OF QUESTION 15

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

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CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 16

DESCRIPTION/REFERENCES:

Identify any instances were Nonconformance Reports were issued.

Were these NCRs issued, processed, and closed out in accordance with 3-21000-ADM-15.01?

Environmental Management Quality Assurance Program Plan Description, Section 15.0 Control of Nonconforming Items, Revision 0, Paragraph 2.3.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

To date two nonconformance reports have been issued by the EM Department, they are as follows:

Date of NCR	NCR #	Resp. ORG.	Description	Status
5/16/91	91-01	EM	OU-1 drilling locations conflict with physical interferences. New locations required.	open
10/17/91	91-02	RPD	Coring chain-of-custody inadequacies	open

It should be noted that NCR 91-01 was issued prior to the EM administrative procedure 3-21000-ADM-15.01, Control of Nonconforming Items and Activities. The effective date of the procedure is 9/23/91.

Both NCRs were found to be registered in the EM NCR log. No further actions on these NCRs were made available for review during this audit.

continued on next page

UNSATISFACTORY - SEE DR AA-92-XX

PERSONNEL CONTACTED: Larry McInroy DATE: September 15, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: september 15, 1992

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CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 16 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

The ten most recent EM inspections were reviewed as part of this audit. These inspection have identified approximately 45 deficiencies. None of these deficiencies have been entered into the EM NCR system. In addition, three surveillances have been accomplished by EM and 15 deficiencies have been identified as a result. Again, none of these deficiencies have been entered into the EM NCR system. The procedure which addresses inspections (3-21000-ADM-10.01, Inspections, Paragraph 5.2.2.6) and the procedure which addresses surveillances (3-21000-ADM-18.02, Surveillance, Paragraph 5.4.1) both require implementation of EM administrative procedure 3-21000-ADM-15.01 upon discovery of nonconformances.

End of Question #16

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 17

DESCRIPTION/REFERENCES:

Did any of the EM issued NCRs identify any root causes?

If so, are these root causes tracked and trended by EM, by FQA?

Environmental Management Quality Assurance Program Plan Description, Section 15.0, Control of Nonconforming Items, Revision 0, Paragraph 2.7.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

None of the two EM issued NCRs addressed a root cause.

The EM administrative procedure, 3-21000-ADM-15.01, Control of Nonconforming Items and Activities, Revision 0, does not address the forwarding of NCRs to Facility Quality Assurance. Section 15.0, Paragraph 2.7, of the EM QAPD requires that the root cause of nonconformances be evaluated as part of the trend analysis system required by Section 16.0 of the QAPD. Paragraph 2.6 of this latter QAPD section refers to EM administrative procedure 3-21000-ADM-18.04, Trend Analysis. This procedure has yet to be developed and no date has yet to be established for it's development, as per the Environmental and Waste Management Procedures Master Index (Run 8-1-92).

PERSONNEL CONTACTED: Larry McInroy DATE: September 28, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: September 29, 1992

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 18

DESCRIPTION/REFERENCES:

Identify any occasions in which the EM corrective action process was initiated, i.e., where any Corrective Action Requests issued?

Were these CARs issued, processed and close-out in accordance with 3-21000-ADM-16.01?

Did the close-out of the CARs include cause, implication of the condition, corrective action and action to preclude recurrence?

Environmental Management Quality Assurance Program Plan Description, Section 16.0, Corrective Action, Revision 0, Paragraph 2.0.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

One Corrective Action Request (CAR) has been issued by EM, it is as follows:

# = RFP-EM-92-02
Date = 5-26-92
Responsible Organization = RPD
Responsible Manager = E. Dille/Pontius
Project Name = Field Traceability Study Phase II, Surface Water Interim Measures/Interim Remedial Action, OU-2
Requirements = EM Dept. QAPD 3.2.2.1, 5.2.4, and 5.2.1; RFP QA Plan for CERCLA Remedial Investigations Studies; and 3-21000-ADM-18.03, Readiness Review, Section 3.0.
Deficiency = The RADs removal FTU operation began on Monday, 4/27/92 without suitable work plans in place.
DUE Date = 6-02-92, revised to 6-09-92 via a memo dated 05-29-92 from Mark Brooks to Dennis Pontius

No further information concerning this CAR was made available during this audit.

Continued on next page UNSATISFACTORY - SEE DR-AA-92-XX

PERSONNEL CONTACTED: Larry McInroy DATE: September 15, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: September 16, 1992

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 18 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Paragraph 5.1.3 of EM administrative procedure, 3-21000-ADM-16.01, Corrective Action, requires the QAPM to assign a response date not to exceed 30 days of the date of initiation of the CAR. Responsible management is to identify the cause and propose appropriate remedial/investigative actions to prevent recurrence or provide a plan describing future actions to resolve the CAR.

In contrast to the requirements of the procedure, no such actions have occurred, as of this audit.

ACTIONS HAVE OCCURRED

End of Question #18

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 19

DESCRIPTION/REFERENCES:

Verify that all issued EM CARs were distributed to Facilities Quality Assurance for entry into the Commitment Management Data Base.

Environmental Management Quality Assurance Program Plan Description, Section 16.0, Corrective Action, Revision 0, Paragraph 2.4.2.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

The distribution of CAR 92-02 was made to the following, as per a memorandum dated 5/28/1992:

E. J. Evered	Environmental Management
E. A. Dille	CERCL/STWD Project
D. W. Pontius	Rem Tech. Resources
M. C. Brooks	Remediation Programs
D. Sinks	Environmental Management
S. Luker	Environmental Management
D. Dahl	DOE

None of these individuals belong to the Facilities Quality Assurance organization.

UNSATISFACTORY - SEE DR AA-92-XX

PERSONNEL CONTACTED: Larry McInroy DATE: September 15, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: September 15, 1992

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 20 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Document Reviews for the following:
- QAPD - none were found
- QAPjP - none were found
- ADM 05.05 - Interlocken/Records Center
- ADM 06.01 - none were found
- ADM 10.01 - none were found
- ADM 15.01 - Interlocken/Records Center
- ADM 16.01 - none were found
- ADM 17.01 - Interlocken/Records Center
- ADM 18.02 - Interlocken/Records Center
- ADM 18.03 - Interlocken/Records Center

EM Inspections - Denver West/SAIC Offices
Nonconformance Reports - Denver West/SAIC offices
Corrective Action Reports - Denver West/SAIC offices
Surveillances - Denver West/SAIC offices
Audits - none, audits have not been performed

End of Question #20

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 21

DESCRIPTION/REFERENCES:

Review and verify that EM records are being managed in accordance with 3-21000-ADM-17.01, Records Management.

Environmental Management Quality Assurance Program Plan Description, Section 17.0, Quality Assurance Records, Revision 0, Paragraph 2.2.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

The document review records of EM administrative procedure 3-21000-ADM-17.01 Quality Assurance Records Management, and 1-21000-EMR-NEPA-002, Rev. 0 were reviewed. The review consisted of inspecting the accepted records using Attachment 2, EM Department Criteria for Acceptance of Source Records for Processing and Microfilming, of 3-21000-ADM-17.01. Many other files are found in the EM Records Management system but were transmitted prior to the effective date of 3-21000-ADM-17.01, of 3/13/92. The following are comments generated as a result of this inspection. These comments address both documents, except as noted.

No record date.
Record title or subject line was found.
Record recipient title was not found but the name and organization was provided.
No record EM file number or RFP file index identified.
Draft of record is identified.
The 17.01 record is authenticated, however, the NEPA-002 record is not authenticated.
The 17.01 record contained obliterated text, name blocked out by magic marker.
Numerous red, maroon, green, and blue ink; pencil; yellow and green high liter entries.
Memorandum on yellow paper, 17.01 document.

Discussions with records management personnel revealed that they were not aware of Attachment 2 of 3-21000-ADM-17.01, indicating a lack of training of records management personnel. Also, these personnel did not have a copy of 3-21000-ADM-17.01 available to them nor did they know of it's existence, other as a document being distributed to other EM personnel.

UNSATISFACTORY - SEE DR-AA-92-XX

PERSONNEL CONTACTED: Linda Williams DATE: September 28, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: September 28, 1992

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 22

DESCRIPTION/REFERENCES:

Verify the performance of Surveillances. Were these surveillances planned, performed, and documented in accordance with 3-21000-ADM-18.02, Surveillance.

Environmental Management Quality Assurance Program Plan Description, Section 18.0, Audits and Surveillances, Revision 0, Paragraph 2.2.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Reviewed the EG&G Rocky Flats Environmental Management Department FY 92 Readiness Review, Surveillance and Audit Schedule, effective date is 07/28/92. Schedule approval is 07/27/92 by the EM QA Program Manager. Activity references are QAA 1.3, 1.5, 2.2, 2.5, 2.6, 3.1, 5.1, 6.1 and 7.1. Surveillance is planned or has been conducted for all activities listed on the schedule.

Readiness Review/Surveillance schedules were developed May, 91; June, 91; July, 91; August, 91; May 2, 92; May 28, 92; and July, 92. The more recent schedule adopts the scheduling of audits, however, none are assigned any dates. The performance of these audits is only planned. The planned audits include Procedure Preparation; Document Control; Work Plan Preparation; and Procurement Document Control.

A review of past schedules finds that adjustments in Readiness Review and Surveillance topics and dates are being adjusted constantly. For example:

From the May 2, 1991 schedule:

OU-2.4, Traceability Study, RR scheduled for 5/28/91 was rescheduled for 7/29/91 by the 6/24/91 schedule. The surveillance portion of the schedule was likewise modified from 6/15/91 to 7/29/91. Then in the 7/19/91 schedule OU-2.4 RR is rescheduled for 8/8/91. Additional RR and surveillance subjects are added in later schedules, namely QAA-1.3, Process Treatment Systems; QAA-2.5, Traceability Studies; and QAA-3.1, Land Surface, Great Reservoir, Standley Lake, and Mower Lake.

continued on next page

PERSONNEL CONTACTED: Larry McInroy DATE: September 11, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: September 11, 1992

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 22 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

The latest (7/27/92) RR/Surv./Audit schedule reflects 18 activities to be RR, survl, or audited. The first documented schedule (5/2/91) contained seven activities to be RR or surveilled. Audits were not scheduled on this earlier schedule. The EM oversight program is growing as indicated by the increase in the number of oversight activates, i.e., readiness reviews, surveillance and audits, and as indicated by the increase in the number of activities being looked at.

Environmental Management Department schedules a surveillance after a readiness review has been conducted of a particular activity. Surveillance reports were reviewed to determine compliance to the EM administrative procedure, 3-21000-ADM-18.02, Surveillance, Revision 0. The effective date of 3-21000-ADM-18.02 is May 11, 1992. The three most recent surveillances were reviewed and are as follows:

EMSURV-92-01, Oversight of DOE 5400.1, Environmental Monitoring and Surveillance Program, conducted 3/18/92;
EMSURV-92-02, RFI/RI Drill Cuttings Management, conducted 4/30/92; and
EMSURV-92-03, O&M of the 881 Hillside (OU-1) IM/IRA, conducted 8/10/92.

Section 5.1, Surveillance Schedule; Section 5.2, Surveillance Personnel; Section 5.3, Surveillance Checklist; Section 5.4, Surveillance Observations and Conduct; Section 5.5, Draft Surveillance Report; and Section 5.7, Final Surveillance Report of 3-21000-ADM-18.02, Surveillance, were used to evaluate the three reviewed surveillance reports. All three surveillances were found to have been conducted as specified by the administrative procedure with the following exceptions:

Paragraph 5.1.3 of 3-21000-ADM-18.02 requires a 5 day notification of surveillances. EMSURV 92-01 was conducted 3/18-92 while the notice was issued 3/17/92, a one day difference. EMSURV 92-02 was conducted 4/30/92 while the notice was issued 4/29/92, again, a one day difference. Both surveillances were conducted prior to the May 11, 1992 effective date of the procedure, however. No notification letter was found for EMSURV 92-03; and

continued on next page

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 22 continued

DESCRIPTION/REFERENCES:

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

Significant surveillance observations were not recorded as nonconformances. Eight "observations" were identified as a result of EMSURV 92-01. Each of these observations were reviewed by the auditor and were determined to be legitimate nonconformances. EMSURV 92-02 identified three nonconformances as deficiencies. EMSURV 93-03 identified four nonconformances as deficiencies. None of these identified nonconformances were recorded on a Deficiency Report form as required by the EM administrative procedure 3-21000-ADM-15.01, Control of Nonconforming Items and Activities. The effective date of 3-21000-ADM-15.01 is 9/23/91, several months before the performance of these surveillances.

In general, however, the surveillances were found to have been performed satisfactorily. The checklists were extensive in scope and detailed in comments. The surveillance procedure was found to be extensive and detailed. The surveillance reports were found to be complete when compared against the procedure.

The failure to conduct surveillance was previously identified as a result of Assurance Audit AA-02-92 and documented as DR AA-92-005.

End of Question # 22 UNSATISFACTORY-SEE-DR-AA-92-XX

PERSONNEL CONTACTED: _____ DATE: _____

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: _____ DATE: _____

CHECKLIST QUESTIONS

AUDIT NO.: 24-92

AUDIT TITLE: ENVIRONMENTAL MANAGEMENT

QUESTION NO.: 23

DESCRIPTION/REFERENCES:

Verify the performance of Audits. Were these audits planned, performed, and documented in accordance with 3-21000-ADM-18.01, Audits.

Environmental Management Quality Assurance Program Plan Description, Section 18.0, Audits and Surveillances, Revision 0, Paragraph 2.1.

RESULTS/REMARKS/OBJECTIVE EVIDENCE:

There currently does not exist an audits program with in the Environmental Management Department. EM administrative procedure 3-21000-ADM-18.01, Audits, is currently in development. Also, the Readiness Review/Surveillance/Audit schedule, dated 7/28/92, indicates the scheduling of audits in the areas of procedure preparation; document control; work plan preparation; and procurement document control. Although these four audits were scheduled for each of four months starting with July, 1992 and ending with October, 1992, none have been accomplished.

Based on the level of inadequacies found during the performance of this audit, it is evident that an audit program is warranted.

This deficient condition has been previously identified as a result of Assurance Audit AA-02-92 and documented as DR AA-92-005.

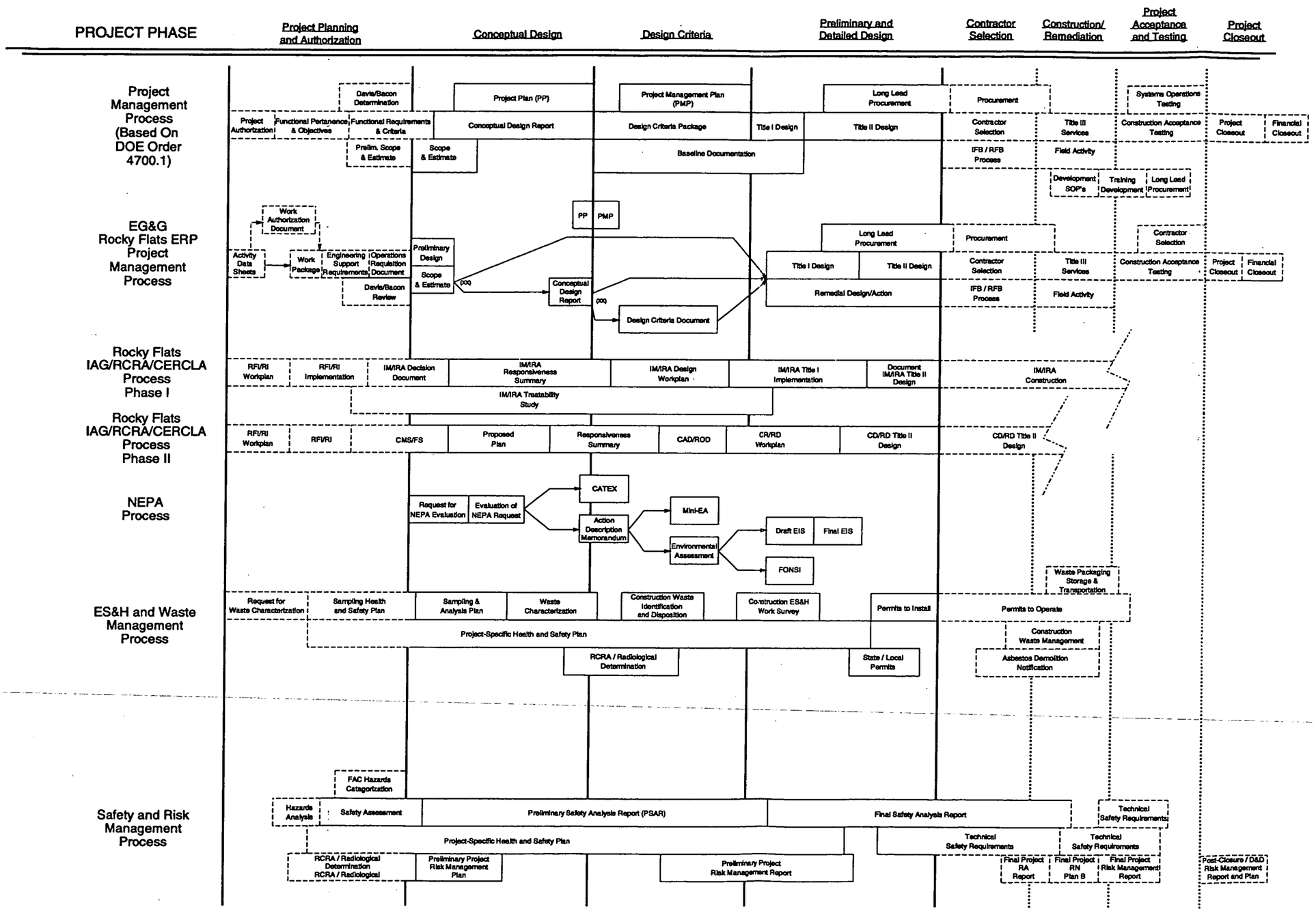
UNSATISFACTORY--SEE DR AA-92-XX

PERSONNEL CONTACTED: Larry McInroy DATE: September 25, 1992

PERSONNEL CONTACTED: _____ DATE: _____

AUDITOR: Robert M. Nilsson DATE: September 25, 1992

Figure 2-2 - Guidance for the EG&G ERP Project Management System



Note:
Elements shown are typical only. Specifics are to be developed for individual projects .

CERCLA
Work Breakdown Structure

DOE EM WBS		MCS WBS
LEVEL 1		
LEVEL 2		
LEVEL3 MSA		
LEVEL 4 INSTALLATION		LEVEL 1
LEVEL 5 SUMMARY SUBPROJECT		LEVEL 2
LEVEL 6 SUBPROJECT		LEVEL 3
		LEVEL 4
		LEVEL 5
		LEVEL 6
		LEVEL 7

PSWBS

CWBS

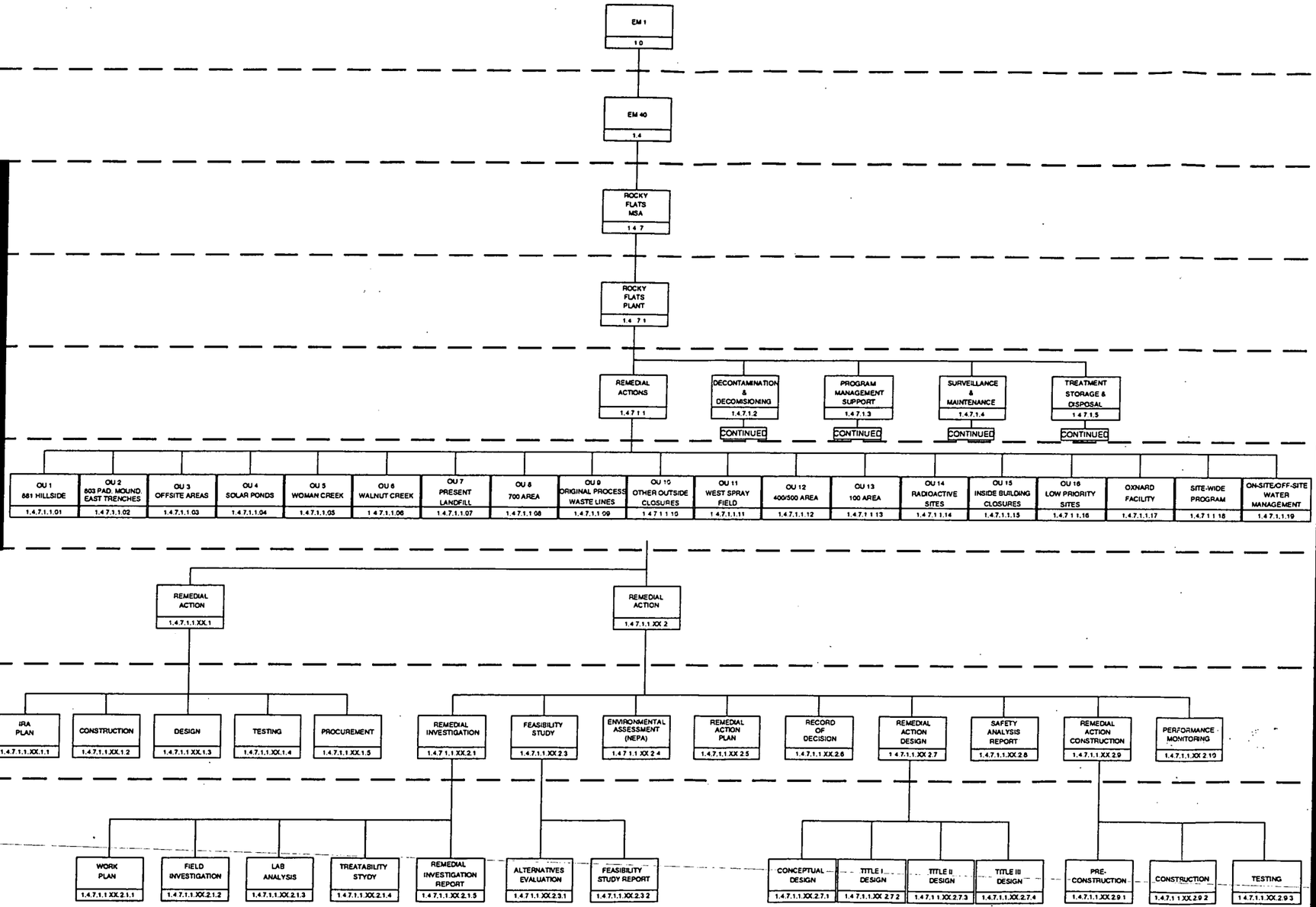


Figure 2-1